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BUTTER TESTS

OF

REGISTERED JERSEY COWS

WHEREIN THE YIELD HAS AMOUNTED TO FOURTEEN POUNDS
OR MORE PER WEEK.

VOL. I.

TO WHICH ARE ADDED

DIFFERENCES IN DAIRY PRODUCTS

(BY H. E. ALVORD).

AND

NUMEROUS FACTS ABOUT JERSEY CATTLE.

COMPILED AND PUBLISHED BY THE AMERICAN JERSEY CATTLE CLUB.

These butter-records have been received on the affidavits of the managers of the tests or the certificates of the owners of the cows tested, and THEIR PUBLICATION BY THE CLUB SHALL NOT IN ANY WISE BE CONSIDERED AN OFFICIAL ENDORSEMENT OF THEIR RELIABILITY, but is simply intended as a continuation of the work inaugurated by Major Campbell Brown, T. H. Malone and W. J. Webster, known as "Butter Tests of Jersey Cows."

New York :

JANUARY, 1889.

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NOTE.

All private butter tests intended for publication by the American Jersey Cattle Club must be made out on and in accordance with the requirements of a blank form designed for the purpose, which is furnished free on application to the Secretary of the Club, No. 1 Broadway, New York City.

The fee for publishing private tests is \$2 each, and no record will be accepted of a test of less than fourteen pounds of butter in seven days.

BUTTER TESTS OF JERSEYS.

Cornwall Maid 19024.—Yield of milk, $19\frac{1}{2}$ qts. per day; yield of butter, 29 lbs. 12 oz.; test made from July 21 to 27, 1887; age, 5 years and 3 months; estimated weight of cow, 900 lbs.; grain fed during test, 6 qts. corn meal, 7 qts. oat meal, 2 qts. pea meal, 1 qt. oil meal and 6 qts. middlings daily; property of D. F. Appleton, Ipswich, Mass.

Cornwall Maid 19024...	{ Ramapo 4679.....	{ Miletus 3186.....	{ Domino of Darlington 2459.
		{ Eurotas 2454.....	{ Premium of Darlington 5572.
			{ Rioter 2d 469, imp.
	{ Lady Cornwall 7179, imp.		{ Europa 176.

Paletta of Darlington 16255.—Yield of milk, 274 lbs. 4 oz.; yield of butter, 27 lbs. 8 oz.; test made from June 1 to 8, 1888; age, 6 years and $2\frac{1}{2}$ months; weight, 950 lbs.; grain fed daily, 17 lbs. chopped oats and corn and $7\frac{1}{2}$ lbs. bran; property of W. A. & A. F. Mullin, Mt. Holly Springs, Pa.

Paletta of Darlington 16255-	{ Duke of Darlington 2469-	{ Sarpedon 930.....	{ Mercury 432.
		{ Eurotas 2454.....	{ Europa 176.
			{ Rioter 2d 469, imp.
	{ Palestina 464.....		{ Europa 176.
	{	{ Pierrot 2d 1669.....	{ Pierrot 636.
		{	{ Dainty 796.
		{ Palestine 3d 1104.....	{ Gen. Scott 46.
			{ Palestine 26.

Eastwood Clearwater 30445.—Yield of milk, 263 lbs.; yield of butter, 27 lbs.; date of test, June 10 to 17, 1888; age, 3 years, 11 months; grain fed daily, 4 qts. corn meal and 4 qts. bran; property of M. Erskine Miller, Staunton, Va.

Eastwood Clearwater 30445.	{	Perrot (P. S. 342 J. H. B.)	{	Bobby (P.S. 208 J. H. B.)	Vertumnus (P. S. 161 J. H. B.)
				Young Rose (P. S. 43 J. H. B.)	
				Royal Beauty (P. S. 390 J. H. B.)	Brownie (P. S. 158 J. H. B.)
					Princess Royal (P. S. 240 J. H. B.)
				Clearwater 24982, imp.	

BUTTER TESTS OF JERSEYS.

King's Princess 30948, imp.—Yield of milk, 232 lbs. 4 oz.; yield of butter, 24 lbs. 5 oz.; test made from June 13 to 19, 1887; age, 6 years; estimated weight, 900 lbs.; grain fed daily, 5 qts. corn meal, 4 qts. bran and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

King's Princess 30948.	{	King (P. S. 238 J. H. B.)	{	Young Prince.....	{	Khedive
				(P. S. 182 J. H. B.)		(P. S. 103 J. H. B.)
		Judy (F. S. 1590 J. H. B.)		Princesse		
	{	Grise on I. of J.				(F. S. 1294 J. H. B.)

Count's Fillpail 30975.—Yield of milk, 170 lbs. 12 oz.; yield of butter, 24 lbs. 5 oz.; test made from February 23 to 29, 1888; age, 3 years and 9 months; weight, 830 lbs.; grain fed daily, 6 lbs. corn and oats, 4 lbs. bran, 2 lbs. flax meal and 1 pint condimental food; property of M. Erskine Miller, Staunton, Va.

Count's Fillpail 30975.... } Count Cicero (F. S. 398 J. H. B.)
 } Fille de l'Air (F. S. 3548 J. H. B.)

Queen of Beauty 17109.—Yield of milk, 221 lbs. 4 oz.; yield of butter, 23 lbs. 14 oz.; test made from June 7 to 14, 1888; age, 6 years and 9 months; weight, 990 lbs.; grain fed daily, 4½ lbs. corn meal, 2 lbs. cotton seed meal, 1 lb. pea meal, and 9 lbs. bran; property of Mrs. Hunter Nicholson, Knoxville, Tenn.

Queen of Beauty 17109.. { Knight of St. Louis 3680.. { On I. of J.
 { Lily of Les Niemes 7465. imp.
 { Valentine of Trinity 7460.. { Duke (P. S. 76 J. H. B.) { Merry Boy
 { ——— { (P. S. 61 J. H. B.) { (P. S. 353 J. H. B.)

Lady Golddust 2d 19861.—Yield of milk, 21 qts. per day; yield of butter, 23 lbs. 4 oz.; test made from July 15 to 21, 1887; age, 6 years; estimated weight of cow, 900 lbs.; grain fed during test, 5 qts. corn meal, 8 qts. oat meal, 2 qts. pea meal, 1 qt. oil meal and 5 qts. middlings daily; property of D. F. Appleton, Ipswich, Mass.

Lady Golddust 2d 19861.	{	Duke of Darlington 2460.	{	Sarpedon 930.....	{	Mercury 432.	
						Europa 176.	
				{	Eurotas 2454.....	{	Rioter 2d 469, imp.
						Europa 176.	
		Lady Golddust 7718....	{	Jersey Golddust 2f34, imp.			
			{	Bluebird 599.....	{	Junius 204.	
						Bluebell 116.	

Kathletta 19567.—Yield of milk, 174 lbs. 6 oz.; yield of butter, 22 lbs. 12½ oz.; test made from November 8 to 15, 1888; age, 6 years and 10 months; estimated weight, 900 lbs.; grain fed daily, 2 gallons ground corn and 2 gallons ground oats; property of M. C. Campbell, Spring Hill, Tenn.

Kathletta 19567.....	{	Lord Harry 3445.....	{	Top-Sawyer 1404.....	{	Marius 760.	
						Emblem 90.	
				{	Duchess of Bloomfield 3653	{	Rioter 670, imp.
							Angela 1682.
	{	Kate Gordon 8387.....		Pertinax 1965	{	Pertinatti 713.	
						Roxana 1761.	
			{	Normanda 3914.....	{	Normandy 1046.	
						Olive 4th 3018.	

Chinqua 27384.—Yield of milk, 270 lbs.; yield of butter, 22 lbs. 9½ oz.; test made from May 28 to June 4, 1888; age, 4 years and 1 month; estimated weight, 950 lbs.; grain fed daily during test, 14 lbs. corn meal; property of J. R. Anderson, Jr., Lee, Va.

Chinqua 27384.....	{	Telegraph 9457.....	{ Farmer's Glory 5196.....	{ Grey King (P. S. 169 J. H. B.)
		—	—	{ Bonheur (F. S. 1651 J. H. B.)
	{	Chinquapin 4501.....	{ Orange Peel 864. imp.	
		Verona 2185.....	{	{ Black Imperial 255. Lydia 462.

Miss Belle 5083.—Yield of milk, 276 lbs.; yield of butter, 22 lbs. 9 oz. (official); test made from May 25 to 31, 1886; age, 10 years and 5 months; weight, 1,100 lbs.; grain fed during the test, totals for 7 days, crushed oats 87 lbs., corn meal 55 lbs., bran 24 lbs., linseed oil cake meal 25 lbs., pea meal 25 lbs.; total lbs. grain 216; property of Frederic Bronson, Greenfield Hill, Conn.

Miss Belle 5083	{	Apis 1206.....	{ Collamore's Atlantic 739, imp.
		—	{ Undine 1864, imp.
		Miss Blossom 1986.....	{ Cœur de Lion 318, imp. Doty Dimple 377, imp.

Fill Pail's Countess 24462.—Yield of milk, 233 lbs. 8 oz.; yield of butter, 22 lbs. 8 oz.; test made from May 30 to June 5, 1887; age, 4 years; grain fed daily, 4 qts. bran, 4 qts. corn and oats and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Fill Pail's Countess 24462.....	{	Count St. George 8403.....	{ Sir George 7656.....	{ Guy Fawkes (F. S. 251 J. H. B.)
		—	—	{ Brown Bess 12092, imp.
	{	—	{ St. Clémentaise 18163, imp.	
		Fill Pail 2d 24388.....	{ King (P. S. 238 J. H. B.)	
			{ Fill Pail 24341, imp.	

Royal Queen 24428.—Yield of milk, 224 lbs. 12 oz.; yield of butter, 22 lbs. 6 oz.; test made from June 7 to 14, 1887; age, 5 years and 5 months; estimated weight, 950 lbs.; grain fed daily, 4 qts. bran, 4 qts. ground oats and corn and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Royal Queen 24428.....	{	Nero 7266.....	{	Carlo 5559.....	{	Hero (P. S. 126 J. H. B.)
	{	{	{	{	{	{

Bisson Belle 31144.—Yield of milk, 156 lbs. 7 oz.; yield of butter, 21 lbs. 15½ oz.; test made from October 30 to November 6, 1888; age, 5 years and 8 months; estimated weight, 1,000 lbs.; grain fed daily, 5 gallons ground corn and oats, equal parts; property of Maury Jersey Farm, Columbia, Tenn.

Bisson Belle 31144.....	{	Carlos on I. of J.
		{ Purity on I. of J.

Khelula 17970.—Yield of milk, 184 lbs. 13 oz.; yield of butter, 21 lbs. 8 oz.; test made from November 30 to December 7, 1885; age, 4 years and 9 months; estimated weight, 800 lbs.; grain fed daily, 9 lbs. corn meal, 3 lbs. oil meal, 2 lbs. middlings and 2 lbs. bran: property of James Stillman, Sing Sing, N. Y.

Khelula 17970.....	{	King (P. S. 338 J. H. B.)	{	Young Prince.....	{	Khedive
				(P. S. 182 J. H. B.)		(P. S. 103 J. H. B.)
				Judy (F. S. 1590 J. H. B.)		Princesse
						(F. S. 1294 J. H. B.)
	{	Sophie (F. S. 434 J. H. B.)				

Lady Antoinette 24391, imp.—Yield of milk, 272 lbs.; yield of butter, 21 lbs. 6 oz.; test made from May 31 to June 6, 1887; age, 6 years and 3 months; estimated weight, 900 lbs.; grain fed daily, 4 qts. bran, 4 qts. ground corn and oats and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Lady Antoinette 24391	{	Garibaldi.....	{	Pretender.....	{	Rusticus
				(P. S. 187 J. II. B.)		(P. S. 109 J. II. B.)
				(P. S. 242 J. II. B.)		Gentile
				Lady Alice (F. S. 1838 J. II. B.)		(F. S. 794 J. II. B.)
		Castaledes (F. S. 2876 J. II. B.)				

Judy of Riverside 16495.—Yield of milk, 284 lbs.; yield of butter, 21 lbs. 4½ oz.; test made from October 18 to 24, 1886; age, 5 years and 2 months; estimated weight, 1,000 lbs.; grain fed during the test, 4½ lbs. oats, 2½ lbs. oil meal, 3½ lbs. shorts, 3¼ lbs. bran, 3¾ lbs. corn meal daily; property of C. W. H. Eicke, West Monterey, Pa.

Judy of Riverside 16495-	{	Wessex 3638.....	{ Amadens 1043, imp.		
			{ Ida 3d 2354.....	{ Napoleon 291.	
	{			{ Ida 772.	
		Floss of Lawnfield 16085-	{ Napoleon 2d 527.....	{ Major 378.	
				{ Europa 558.	
		{ Judy 691.....	{ Correct 223.		
			{ Daisy 692.		

Rioter Carlotta 29667.—Yield of milk, 228 lbs. 6 oz.; yield of butter, 21 lbs. 2½ oz.; test made from May 24 to 31, 1888; age, 4 years and 1 month; estimated weight, 700 lbs.; grain fed daily, 6 lbs. wheat middlings; property of James Stillman. Sing Sing, N. Y.

			Hero (P. S. 126 J. H. B.)
	Lord of Mountainside 7111..	Carlo 5559..... Pretty Maid 7012.	
		Guy Fawkes (F. S. 251 J. H. B.)	
Rioter Carlotta 29667....		Coomassie 2d 11969.. Coomassie 11874.	
	Butterstamp Lass 19517.....	Ramapo 4679..... Eurotas 2154.	Milletus 3186. Schonenmunk Lass 9126, imp.

Edith Campbell 23011.—Yield of milk, 256 lbs. 8 oz.; yield of butter, 21 lbs. $4\frac{1}{2}$ oz.; test made from January 6 to 13, 1888; age, 5 years and 3 months; estimated weight, 900 lbs.; grain fed daily, 8 lbs. corn meal, 8 lbs. bran, 2 lbs. oil meal and 2 lbs. middlings; property of James Stillman, Sing Sing, N. Y.

Edith Campbell 23011.	{	Norman B. 7001....	{ Duke of Mansfield 2277.	{ Pierrot 636.
			{ La Biche 905.	
		{	Peggy Daw 12105.....	{ Burnside 2d 2838.
				{ Arbutus 2d 6298.
{	Beauty of Snipsic 22909.	{	Coventry Boy 5847.....	{ Duke of Mansfield 2277.
				{ Betty Bowen 9494.
				{ Robert Hector 10284.
			{ Pride of Snipsic 22306..	{ Lilly Burnside 4384.

Granny's Gem 30406.—Yield of milk, 179 lbs. 4 oz.; yield of butter, 21 lbs. $\frac{3}{8}$ oz.; test made from October 8 to 15, 1887; age, 5 years and 8 months; estimated weight, 900 lbs.; grain fed daily, 4 qts. corn meal, 6 qts. bran and 1 qt. flax meal; property of M. Erskine Miller, Staunton, Va.

Granny's Gem 30406.	{	King (P. S. 238 J. H. B.)	{ Young Prince.....	{ Khedive
			{ (P. S. 182 J. H. B.)	{ (P. S. 103 J. H. B.)
			{ Judy (F. S. 1590 J. H. B.)	{ Princesse
				{ (F. S. 1294 J. H. B.)
{	Granny.....	{	Brownny (P. S. 158 J. H. B.)	{
			{ (P. S. 495 J. H. B.)	{ Vieille Grise (F. S. 1002 J. H. B.)

Lady's Blossom 18491.—Yield of milk, 148 lbs. 8 oz.; yield of butter, 20 lbs. $15\frac{3}{4}$ oz.; test made from July 15 to 22, 1886; age, 4 years and 10 months; grain fed daily, 5 qts. bran; property of M. Erskine Miller, Staunton, Va.

Lady's Blossom 18491.	{	Hard Trials 5050.....	{ Gilderoy 2107....	{ Magnetic 1428.
			{ Eugenie 498.....	{ Jeanne Le Bas 2476.
	{	Lady Ellen 11660.....	{ Prince 199.	{ Florette 124.
			{ Gilderoy 2107.	
			{ Gold Lace 10726.....	{ Roanoke 1448.
				{ Delpha 2d 10713.

Eurotisama 29668.—Yield of milk, $16\frac{1}{2}$ qts. per day; yield of butter, 20 lbs. $13\frac{1}{2}$ oz.; test made from March 1 to 7, 1887; age, 2 years and 10 months; estimated weight, 600 lbs.; grain fed during test, 4 qts. corn meal, 6 qts. ground oats, $1\frac{1}{2}$ qts. pea meal, 1 qt. linseed meal and 7 qts. middlings; property of D. F. Appleton, Ipswich, Mass.

Eurotisama 29668.....	{	Young Pedro 9033.....	{ Pedro 3187.....	{ Domino of Darlington 2459.
			{ Rioter Alpha 10091.	{ Eurotas 2454.
	{	Amité 18877.....	{ Jason Jr. 3270.	{ Chansonnette 5695.
			{ Ramapo 4679.....	{ Miletus 3186.
			{ Eurotas 2454.	
			{ Jaco 1646.	
			{ Laitière 8121.....	{ Jurelle 3133.

Honey Belle 25824.—Yield of milk, 357 lbs. 3 oz.; yield of butter, 20 lbs. 7½ oz.; test made from November 1 to 8, 1888; age, 5 years and 7 months; estimated weight, 900 lbs.; grain fed daily, 14 lbs. of ground oats, 13 lbs. corn meal, 12 lbs. of shorts and 2 lbs. oil meal; property of D. F. Appleton, Ipswich, Mass.

Honey Belle 25824....	{ Duke of Darlington 2460.....	{ Sarpedon 930.....	{ Mercury 432.
		{ Eurotas 2454.....	{ Europa 176.
	{ Honeydrop 10033.....	{ Guy Warwick 1450.....	{ Rioter 2d 469, imp.
		{ Lady Pauline 2651.....	{ Europa 176.
			{ Mercury 432.
			{ Edith 3d 806.
			{ Southey 517.
			{ Brown Bess 2649.

Dorine's Brunette 29309.—Yield of milk, 289 lbs. 8 oz.; yield of butter, 20 lbs. 3 oz.; test made from March 1 to 7, 1888; age, 3 years, 4 months; estimated weight, 800 lbs.; grain fed daily, 7 lbs. corn meal, 10 lbs. bran and 3 lbs. linseed meal; property of J. R. Anderson, Jr., Lee, Va.

Dorine's Brunette 29309....	{ Brunette's Prince 7115....	{ Prince Hammond 3672, imp.	
		{ Brunette Hammond 7284, imp.	
	{ Dorine 7456.....	{ Palmerston 2463.....	{ Hannibal 618.
		{ Jaqueline 2164.....	{ Sweetbrier 603.
			{ Clement 115.
			{ Jewel 336.

Edna of Verna 34537.—Yield of milk, 180 lbs. 2 oz.; yield of butter, 20 lbs. 2½ oz.; test made from June 13 to 19, 1888; age, 3 years and 3 months; weight, 875 lbs.; grain fed daily, 2 qts. corn meal, 2 qts. ground oats, 4 qts. bran and 1 pt. oil meal; property of Frederic Bronson, Verna Farm, Greenfield Hill, Conn.

Edna of Verna 34537....	{ Halo 10517.....	{ Footstep 5163.....	{ Wanderer 3014.
		{ Hilda D. 6683.....	{ Fadette of Verna 6814.
	{ Edessa 21844.....	{ Chief Justice 2d 1643.	
		{ Hilda C. 3869.	
			{ Wanderer 3014.
			{ Fadette of Verna 6814.
			{ John Gilpin 2199.
			{ Effie of Hillside 1521.

Baron's Sophie 17615.—Yield of milk, 271 lbs. 8 oz.; yield of butter, 19 lbs. 15⅞ oz.; test made from May 2 to 8, 1887; age, 5 years and 1½ months; estimated weight, 875 lbs.; grain fed during test, 14 lbs. of mixed feed twice daily; property of M. C. Campbell, Spring Hill, Tenn.

Baron's Sophie 17615....	{ Baron (P. S. 289 J. H. B.)	{ Farmer's Glory (F. S. 274 J. H. B.)	
		{ Perry Farm Maid.....	{ Dick
	{ Sophie (F. S. 434 J. H. B.)	{ (P. S. 178 J. H. B.)	{ (F. S. 223 J. H. B.)
		{ Bijou	{ (F. S. 989 J. H. B.)

Rioter Rhea 10092.—Yield of milk, 18 qts. per day; yield of butter, 19 lbs. $3\frac{1}{2}$ oz.; test made from August 7 to 13, 1886; age, 7 years and 4 months; grain fed during test, 18 qts. per day; estimated weight of cow, 800 lbs.; property of D. F. Appleton, Ipswich, Mass.

Rioter Rhea 10092.....	{	Jason Jr. 3270.....	{	Jason 1550.....	{	Neptune of the Grange 1549.	
			Lady Reynolds 3808	{	Jessica of the Grange 3805.	{	Neptune of the Grange 1549.
					{	Curley 3804.	
	{	Chansonnette 5695..	{	Westchester 1266...	{	Inachus 926.	
				{	Clytemnestra 2455.	{	Duke 404.
			{	Clochette d'Or 5696.	{	Emma Washington 1663.	

Grace G. Parks 29263.—Yield of milk, 257 lbs. 8 oz.; yield of butter, 19 lbs. 3 oz.; test made from June 24 to July 1, 1888; age 6 years and 1 month; estimated weight, 800 lbs.; grain fed daily, 12 lbs. corn meal, $13\frac{1}{2}$ lbs. oil meal, $1\frac{1}{2}$ lbs. oats, $3\frac{1}{4}$ lbs. bran and middlings; property of A. D. McBride, Rochester, N. Y.

Grace G. Parks 29263.....	{	Deerfoot Boy of Som- erset 6944.....	{ Fitz 1988.....	{ Pagan 1800.
			{ Sally Parks 3854.....	{ Canary Bird 2d 4264.
				{ Sancho Boy 1576.
	{	Estella Parks 15435.....		{ White Rose 3771.
			{ Duke of Somerset 1886..	{ Duke of Framingham 1521.
				{ Flora Temple 3768.
			{ Duchess of Somerset 6276.....	
				{ Duke of Somerset 1886.
				{ Cora Parks 3781.

Bijou Ogston 8210.—Yield of milk, 217 lbs. 4 oz.; yield of butter, 18 lbs. 15 oz.; test made from June 14 to 21, 1887; age, 11 years; estimated weight, 1,000 lbs.; grain fed daily, 4 qts. corn and oats and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Bijou Ogston 8210.....	{		{ Merry Boy (P. S. 61 J. H. B.)
		Duke (P. S. 76 J. H. B.)	Superb (F. S. 353 J. H. B.)
		Countess (F. S. 1302 J. H. B.)	

Waiter Girl 2d 29265.—Yield of milk, 235 lbs. 8 oz.; yield of butter, 18 lbs. $14\frac{1}{2}$ oz.; test made from June 7 to 14, 1888; age, 5 years and 10 months; estimated weight, 900 lbs.; grain fed daily, $6\frac{3}{4}$ lbs. corn meal, 7 lbs. each bran, middlings and oil meal, and $3\frac{3}{4}$ lbs. oats; property of A. D. McBride, Rochester, N. Y.

Waiter Girl 2d 29265.....	{	Mercury Boy 5721...	Compeer 2367.....	Son of Alpha 562.
				Bella Donna 1727.
			Little Gus 8776.....	Mercury 432.
	{			Gussie Richards 1673.
		Waiter Girl 12776...		
		Elkornah 4401.....	Statesman 2407.	
		Millie Waite 10646..	Dolly Hughes 2486.	
			Tasso of Mount Waite 2334.	
			Millie of Mount Waite 5207.	

Ulricalla 22225.—Yield of milk, 195 lbs. 10 oz.; yield of butter, 18 lbs. 14 oz.; test made from February 24 to March 2, 1887; age, 3 years and 5 months; estimated weight, 800 lbs.; grain fed daily, 4 lbs. crushed oats, 4 lbs. bran, 1 lb. oil meal, $1\frac{1}{2}$ lbs. corn meal, $1\frac{1}{2}$ lbs. pea meal and 2 lbs. shorts; property of C. W. H. Eicke, West Monterey, Pa.

Ulricalla 22225.....	{	Wessex 3638.....	{	Amadeus 1043.....	{	On I. of J.
			{	Katiedidn't 2734.		
			{	Napoleon 291.		
	{	Ida 3d 2254.....	{	Ida 772.		
{	Rosa Thornton 12233....	{	Tarquin 750.....	{	On I. of J.	
		{	Lottie Warren 1667.			
		{	Blücher 48.			
		{	Daisy Europa 11600.....	{	Jessie Fremont 987.	

Silicon 25577.—Yield of milk, 202 lbs. 5 oz.; yield of butter, 18 lbs. 13 oz.; test made from July 15 to 22, 1888; age, 4 years and 6 months; estimated weight, 675 lbs.; grain fed daily, 8 lbs. bran and 4 lbs. corn meal; property of Jacob L. Thomas, Knoxville, Tenn.

Silicon 25577.....	{	Prince George 11571.....	{	Sir George 7656.....	{	Guy Fawkes
					(F. S. 251 J. H. B.)	
					Brown Bess 13092, imp.	
		Sadie A. 25573.....	{	Umpire 2d (P. S. 232 J. H. B.)	{	
				Snowy (F. S. 910 J. H. B.)		

Siloam 17623.—Yield of milk, 230 lbs. $12\frac{1}{2}$ oz.; yield of butter, 18 lbs. $9\frac{1}{2}$ oz.; test made from May 6 to 12, 1884; age, 3 years and 4 months; fed during test, 8 quarts oats and bran twice daily, with good blue grass pasture; property of John B. Wallace, Lexington, Ky.

Siloam 17623.....	{	Silver Mine 1658.....	{	Silverlocks Jr. 699.....	{	Silverlocks 546.
				Kathleen 1767.	{	Kathleen 1767.
				Minerva 1529.....	{	Suffolk 607.
					{	Maggie 1416.
					{	
		Prunella 2d 5861.....	{	Volunteer 1253.....	{	Quaker 887.
				Prunella 3607, imp.	{	Victorine 2233.

Perry Farm Golden Cloud 22872, imp.—Yield of milk, 208 lbs.; yield of butter, 18 lbs. 9 oz.; test made from June 14 to 21, 1887; age, 6 years; estimated weight, 850 lbs.; grain fed daily, 4 qts. ground corn and oats, 4 qts. bran and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Perry Farm Golden Cloud 22872.	{	Rough..... (P. S. 239 J. H. B.)	{	Cato..... (P. S. 178 J. H. B.)	{	Jersey Boy (P. S. 92 J. H. B.)
						Belle Grisette (F. S. 567 J. H. B.)
						Milord (P. S. 119 J. H. B.)
						Rosette (F. S. 1154 J. H. B.)
						On I. of J.

Lady Phillis 2d 35629.—Yield of milk, 260 lbs. 12 oz.; yield of butter, 18 lbs. 8 oz.; test made from January 29 to February 5, 1888; age, 2 years and 9 months; estimated weight, 800 lbs.; grain fed during test, 8 lbs. corn and oats, 4 lbs. cotton seed meal, 3 lbs. middlings. daily; property of Wm. H. Burr, Redding Ridge, Conn.

Lady Phillis 2d 35629.....	{ Koffee of Ridgeside 11639.....	{ King Koffee 5522.....	{ Sir George (P. S. 221 J. H. B.) Coomassie 11874.
		{ Attractive Maid 16925.	{ Don Pedro of Binghamton 2974. Florence 1043.
	{ Lady Phillis 18240.....	{ Forget-me-not 6291....	{ Farmer's Glory 5196. Erica (F. S. 1946 J. H. B.)
		{ Phillis 2d 18198.....	{ Grey Coat (P. S. 197 J. H. B.) Phillis 18162.

Le Brocq's Pansy Rex 23789.—Yield of milk, 280 lbs.; yield of butter, 18 lbs. 6 oz.; test made from May 29 to June 6, 1888; age, 4 years and 8 months; estimated weight, 800 lbs.; grain fed daily, 2 lbs. 6 oz. oil meal, 4 lbs. 10 oz. ground oats, 2 lbs. 8 oz. bran and 3 lbs. 6 oz. pea meal; property of H. M. Baum, Frankfort, Ind.

Le Brocq's Pansy Rex 23789.....	{ Le Brocq's Prize 3350..	{ On I. of J. Matin 7768, imp.	
		{ Champion of Indiana 3075	{ Champion of Hilltop 1839. Silveretta 6852.
	{ Pansy Rex 11559....	{ Princess Daisy 6248.....	{ Rex 1330. Hurd's Kate 3678.

Oonan 2d 19569.—Yield of milk, 158 lbs. 11 oz.; yield of butter, 18 lbs. 4 $\frac{1}{4}$ oz.; test made from July 23 to 30, 1888; age, 5 years and 6 months; estimated weight, 850 lbs.; grain fed during test, 16 qts. corn, oats and barley mixed in equal parts and ground, daily; property of M. C. Campbell, Spring Hill, Tenn.

Oonan 2d 19569.	{ Lord Harry 3445.....	{ Top-Sawyer 1404.....	{ Marius 760. Emblem 90.
		{ Duchess of Bloomfield 3653.	{ Rioter 670, imp. Angela 1683.
	{ Oonan 1485.....	{ Rajah 340, imp. Omoo 1247, imp.	

Pilot's Rose 17958, imp.—Yield of milk, 205 lbs.; yield of butter, 18 lbs. 3 $\frac{3}{4}$ oz.; test made from June 7 to 14, 1887; age, 7 years and 5 months; estimated weight, 850 lbs.; grain fed daily, 4 qts. bran, 4 qts. ground corn and oats and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Pilot's Rose 17958.....	{ Pilot (P. S. 183 J. H. B.)	{ Khedive	{ Leo (F. S. 198 J. H. B.) Coomassie 11874.
		{ (P. S. 103 J. H. B.)	
	{ Island Cow.	{ Phillis (F. S. 839 J. H. B.)	

Golightly 25597.—Yield of milk, 19 qts. per day; yield of butter, 18 lbs. 2 oz.; test made from March 23 to 29, 1887; age, 4 years and 10 months; estimated weight, 800 lbs.; grain fed during test, 8 qts. corn meal, 5 qts. ground oats, 5 qts. bran and 1 qt. pea meal; property of D. F. Appleton, Ipswich, Mass.

Golightly 25597.....	{ Pedro 3187.....	{ Domino of Darlington 2459.	{ Sarpedon 930. Beauty of Darlington 5736.
		{ Eurotas 2454.....	{ Rioter 2d 469, imp. Europa 176.
	{ Bother 25595.....	{ Actis 4184.....	{ Tyrus 4183. Nereis 8951.
		{ Luna 2d 8949.	{ John Le Bas 398. Luna 8944.

Oléo 38475.—Yield of milk, 256 lbs.; yield of butter, 18 lbs. 1 oz.; test made from August 4 to 11, 1888; age, 6 years and 4 months; estimated weight, 800 lbs.; grain fed daily, about 18 qts. bran, 4 qts. oat meal, 2 qts. corn and oil meal; property of P. J. Cogswell, Rochester, N. Y.

Oléo 38475.....	{ Seneca Chief 4098.....	{ Lord Shaftesbury 2439.....	{ Litchfield 674.
			{ Chestnut 1888.
	{ Pure Mocha 9186.....	{ May Blossom 5657.....	{ Litchfield 674.
			{ Bessie Allen 3719.
		{ Pure Gold 1487.....	{ Butter Stamp 700.
			{ Lady Palestine 2769.
		{ Mocha 2d 4881.....	{ Mount Peter 1320.
			{ Mocha 1921.

Real Queen 29198.—Yield of milk, 231 lbs. 1 oz.; yield of butter, 18 lbs. 1 oz.; test made from March 20 to 27, 1887; age, 3 years and 8 months; estimated weight, 1,050 lbs.; grain fed daily, 14 qts. mixed corn meal, oats and ship stuff and 3 lbs. oil meal; property of H. G. Westlake, Hillsdale, N. Y.

Real Queen 29198	{ Rachel's Duke 7022....	{ Duke of Darlington 2460....	{ Sarpedon 930.
			{ Eurotas 2454.
	{ Auraria 10688	{ Rachel Ray 1754.....	{ Dolphin 2d 468.
			{ Helene 179.
		{ Manchester's Prospect 2817	{ Pierrot 5th 1665.
			{ Olie 4133.
		{ Jersey Cream 2d 8519	{ King of Fairview 778.
			{ Jersey Cream 3151.

Hettie of Briarcliff 26621.—Yield of milk, 185 lbs.; yield of butter 18 lbs. 1 oz.; test made from May 31 to June 7, 1888; age, 4 years; estimated weight, 700 lbs.; grain fed daily, 8 lbs. corn meal and 4 lbs. middlings; property of James Stillman, Sing Sing, N. Y.

Hettie of Briarcliff 26621.....	{ Domino of Darling- ton 2450.....	{ Sarpedon 930.....	{ Mercury 432.
			{ Europa 176.
	{ Hennette 11624.....	{ Beauty of Darlington 5736.....	{ Smith of Darlington 2458.
			{ Grace Darlington 5574.
		{ Fast Boy 2606.....	{ Bon Ton 1656.
			{ Artless 3992.
		{ Hennie 3335.....	{ Careless Boy 1297.
			{ Haidee 971.

Sibyl's Beauty 25941.—Yield of milk, 186 lbs. 4 oz.; yield of butter, 18 lbs.; test made from April 25 to May 1, 1887; age, 5 years; grain fed during test, 18 lbs. daily of mixed corn, oats and middlings; property of George E. Jones, Litchfield, Conn.

Sibyl's Beauty 25941..	{ Forget-me-not 6291, imp.	{ Taurus.....	{ Sans Peur (F. S. 201 J. H. B.)
	{ Sibyl (P. S. 345 J. H. B.)	{ (P. S. 156 J. H. B.)	{ Rose (F. S. 1514 J. H. B.)
		{ Lily (F. S. 1426 J. H. B.)	

Annie L. 12934.—Yield of milk, 223 lbs. 4 oz.; yield of butter, 17 lbs. 15¼ oz.; test made from September 16 to 23, 1886; age, 5 years and 8 months; property of W. B. Montgomery, Starkville, Miss.

Annie L. 12934.....	{ Champion of America 1567	{ May Boy 705.....	{ Bismarck 292.
			{ Crocus 1787.
	{ Annie Landers 2d 7670....	{ Pansy 1019.....	{ Living Storm 173.
			{ Dolly 2d 1020.
		{ Thomas Motley 2128....	{ Aldine 1136.
			{ Mint 2549.
		{ Annie Landers 6006	{ Aldine 1136.
			{ Ruth Duffee 2481.

May Evening 15938.—Yield of milk, 289 lbs. 13 oz.; yield of butter, 17 lbs. 13 oz.; test made Aug. 19 to 26, 1887; age, 9 years 2½ months; grain fed during test, 8 lbs. corn meal, 8 lbs. oat meal, 8 lbs. shorts and 8 lbs. oil meal, daily; estimated weight of cow, 900 lbs.; property of J. Herbert Johnston, Plainfield, N. J.

May Evening 15938...	{	Polonius 2513.....	Sarpedon 930.....	Mercury 432.
			Europa 176.	Jupiter 93.
		{	Leda 799.....	Europa 176.
			{	Pet's Beauty 15736.....
	Queen of Staatsburgh 2234.			
	Southey 517.			
		Highland Pet 2653..	Brown Bess 2649.	

Paradise 32082.—Yield of milk, 227 lbs. 8 oz.; yield of butter, 17 lbs. 11 oz.; test made from May 10 to 17, 1887; age, 4 years and 10 months; property of Richardson Bros., Davenport, Iowa.

Paradise 32682.....	{	Combination 4389.....	{	Polonius 2513.....	Sarpedon 930.
				Leda 799.	
	{	Lady Mel 429.....	{	McClellan 4th 85.	
				Mel 2d 57.	
	{	Goodbye 27396.....	{	Auroraorecillus 2408..	Empire 1637.
				Lady of Walnut Grove 4837.	
Cobden 1871.					
			{	Frankie's Lass 24900.	Frankie 5th 3542.

Maid of Fernwood 2d 29010.—Yield of milk, 221 lbs. 9 oz.; yield of butter, 17 lbs. 11 oz.; test made from June 2 to 9, 1888; age, 5 years and 23 days; estimated weight, 900 lbs.; grain fed daily, 5 qts. corn meal, 1 qt. oil meal and 6 qts. bran; property of D. W. Voyles, Crandall, Ind.

Maid of Fernwood 2d- 29010.	{	Uproar 4th 5954.....	{	Uproar 4609.....	Duke of Darlington 2460.
				Euphrates 9778.	
	{	{	Elodia 6101.....	Cinnabar 1739.	
			Tethys 3686.		
	{	Maid of Fernwood 10939.	{	Balboa 1244.....	Duke of Grayholdt 1035.
				Ibex 2721.	
			{	Prize Maid 3835.....	Prize Duke 942.
					Jersey Prize 1267.

Lilly Signalda 23227.—Yield of milk, 158 lbs. 14 oz.; yield of butter, 17 lbs. 10 oz.; test made from August 22 to 29, 1888; age, 5 years and 2 months; estimated weight, 850 lbs.; grain fed daily, 16 qts., two-thirds oats, one-third corn, in two feeds; property of M. P. Webster, Columbia, Tenn.

Lilly Signalda 23227.....	{	Signalda 4027.....	{	Signal 1170.....	Marius 760.	
				Pansy Morris 2060.		
		{		Alda 3873.....	Grand Duke Alexis 1040	
				Archie 1112.		
	{	Belle of Tennessee 9573.....	{	Doctor Wogg 3504.....	Proxy 1714.	
					Polly Wogg 3814.	
Northern Chief						
			{	Belle of New York 6963.	(P. S. 137 J. H. B.)	
					Mousie 6962.	

Helen Stoke Pogis 31947.—Yield of milk, 236 lbs. 8 oz.; yield of butter, 17 lbs. 8 oz.; test made from July 9 to 16, 1888; age, 3 years and 3 months; estimated weight, 900 lbs.; grain fed daily, 3 lbs. bran, 9 lbs. corn meal, 10½ lbs. oil meal, 3½ lbs. fine middlings and 3 lbs. ground oats; property of A. D. McBride, Rochester, N. Y.

Helen Stoke Pogis 31947.....	{	Exile of St. Lambert 13657.....	{	Bachelor of St. Lam- bert 4558.....	{	Orloff 3143. Charity of St. Lam- bert 6638.
		Allie of St. Lambert 24991.....		{		Stoke Pogis 3d 2238. Kathleen of St. Lam- bert 5122.
	{	Lady Delphine 28460....		Baldwin's Frolic 13840.	{	Koba Jr. 2471. Playful 4893. Pride of Guilford 2138. Lita 4930.
				Lady Sarah 4931.....		{

May Day Stoke Pogis 28353.—Yield of milk, 298 lbs. 12 oz.; yield of butter, 17 lbs. 7 oz.; test made from July 12 to 18, 1886; age, 6 years and one month; estimated weight, 1,000 lbs.; grain fed daily, 20 lbs. of corn, oats and bran; property of C. A. Reeser, Springfield, Ohio.

May Day Stoke Pogis 28353.....	{	Stoke Pogis 3d 2238.....	{ Stoke Pogis 1259, imp.		
			{ Marjoram 3239, imp.		
		May Day of St. Lam- bert 5109.....	{	Lord Lisgar 1066.....	{ Victor Hugo 197. Pauline 494. Victor Hugo 197. Beauty 1319.
				Ierne 1373.....	

Transcript 31867.—Yield of milk, 239 lbs.; yield of butter, 17 lbs. 7 oz.; test made from June 1 to 7, 1887; age, 4 years and one month; property of Richardson Bros., Davenport, Iowa.

Transcript 31867.....	{	Combination 4389.....	{	Polonius 2513.....	{	Sarpedon 930. Leda 799. McClellan 4th 85. Mel 2d 57.
				Lady Mel 429.....		
		Chronicle 21625.....	{	Young George 3413.....	{	Faust 503. Countess Gisela 2820. Ishmael 1215. Bessie Ring 12175.
				Miss Millie 12264.....		

Leila of Briarcliff 24184.—Yield of milk, 171 lbs. 6 oz.; yield of butter, 17 lbs. 6½ oz.; test made from May 21 to 28, 1886; age, 2 years and 6 months; estimated weight, 750 lbs.; grain fed daily, 4 qts. corn meal, 2 qts. bran and 2 qts. malt sprouts; property of James Stillman, Sing Sing, N. Y.

Leila of Briarcliff 24184.....	{	Domino of Darlington 2459.	{	Sarpedon 930.....	{	Mercury 432. Europa 176. Smith of Darlington 2458. Grace Darlington 5574. Duke (P. S. 76 J. H. B.) Lily Grey (F. S. 770 J. H. B.)
				Beauty of Darlington 5736.....		
		Jersey Lily 14044.....	{	Grey King.....		
				(P. S. 169 J. H. B.) On I. of J.		

Martha Lafayette 17158.—Yield of milk, 220 lbs. 10 oz.; yield of butter, 17 lbs. 6 oz.; test made from June 17 to 24, 1888; age, 7 years and 8 months; estimated weight, 850 lbs.; grain fed daily, 8 lbs. bran, 5 lbs. corn meal, 2 lbs. of cotton-seed meal and 2 lbs. pea meal; property of T. S. Webb, Knoxville, Tenn.

Martha Lafayette 17158.....	{	Lord Harry 3445.....	{	Top-Sawyer 1404.....	{	Marius 760. Emblem 90.
			{	Duchess of Bloomfield 3653.....	{	Rioter 670. imp. Angela 1682.
	{	Mary Garnet 10371.....	{	Milkboy 2844.....	{	Lord Byron 707. Milkmaid 3958.
			{	Garnet of Bourbon 6345.....	{	Yankee 1003. Garnet of Staatsburgh 2d 3647.

Lady Ramaposa 26232.—Yield of milk, 245 lbs. 3 oz.; yield of butter, 17 lbs. 5½ oz.; test made from December 11 to 18, 1888; age, 4 years and 8 months; estimated weight, 675 lbs.; grain fed daily, 15 lbs. middlings, 14 lbs. ground oats, 12 lbs. corn meal and 2 lbs. oil meal; property of D. F. Appleton, Ipswich, Mass.

Lady Ramaposa 26232.....	{	Ramapo 4679.....	{	Miletus 3186.....	{	Domino of Darlington 2450. Premium of Darlington 5572
			{	Eurotas 2454.....	{	Rioter 2d 469. imp. Europa 176.
	{	Gray Therese 5322.....	{	Son of Alpha 562.....	{	Dolphin 2d 468. imp. Alpha 171.
			{	Therese 2039.....	{	Gray Friar 567. Mary Ann 2038.

Zenitza 19190.—Yield of milk, 216 lbs. 4 oz.; yield of butter, 17 lbs. 5¼ oz.; test made from July 1 to 8, 1888; age, 5 years and 10 months; weight, 1,035 lbs.; grain fed daily, 10 lbs. bran, 8 lbs. corn meal, 1 lb. cotton-seed meal and 1 lb. pea meal; property of Jacob L. Thomas, Knoxville, Tenn.

Zenitza 19190.....	{	Tormentor 3533.....	{	Khedive.....	{	Leo (F. S. 198 J. H. B.) Coomassie
			{	(P. S. 103 J. H. B.)	{	(F. S. 1442 J. H. B.)
	{		{	Angela (F. S. 1607 J. H. B.)		
		Neata 4748.....	{	Rulander 1037.....	{	Duke of Grayholdt 1035. Caramel 2727.
			{	Fleta 3859.....	{	Alvin 882. Myrtle 612.

Belmina 19189.—Yield of milk, 214 lbs.; yield of butter, 17 lbs. 3¼ oz.; test made from August 15 to 22, 1888; age, 6 years and 6 days; weight, 947 lbs.; grain fed daily, 5 lbs. bran, 5 lbs. corn meal and 6 lbs. oat meal; property of Jacob L. Thomas, Knoxville, Tenn.

Belmina 19189.....	{	Tormentor 3533.....	{	Khedive.....	{	Leo (F. S. 198 J. H. B.) Coomassie
			{	(P. S. 103 J. H. B.)	{	(F. S. 1442 J. H. B.)
	{		{	Angela (F. S. 1607 J. H. B.)		
		Belle of Tennessee 9573.....	{	Doctor Wogg 3504.....	{	Proxy 1714. Polly Wogg 3814.
			{	Belle of New York 6963.....	{	Northern Chief (P. S. 137 J. H. B.) Mousie 6962. imp.

Serita 15520.—Yield of milk, 158 lbs.; yield of butter, 17 lbs. 2 oz.; test made from January 6 to 13, 1888; age, 6 years and 4 months; estimated weight, 750 lbs.; grain fed daily, 8 lbs. corn meal, 8 lbs. bran, 2 lbs. oil meal and 2 lbs. middlings; property of James Stillman, Sing Sing, N. Y.

Serita 15520	{ Solid South 4711.....	{ Butter Boy 3243.....	{ Balsora 2357.
		{ Lulu Wing 6292.....	{ Oak Leaf 4769.
			{ Trusty 1101.
	{ Sallie Ward 7201.....	{ Bluetooth 1821.....	{ St. Helier 45, imp.
		{ Lass Edith 6290.....	{ Silene 4307.
			{ Trusty 1101.
			{ Edith 3d 806.

Cicero's Juno 16726.—Yield of milk, 20 qts. per day; yield of butter, 17 lbs. 2 oz.; test made from July 24 to 30, 1886; age, four years; grain fed during test, 3 qts. corn meal, 7 qts. ground oats and 7 qts. middlings per day; estimated weight of cow, 850 lbs.; property of D. F. Appleton, Ipswich, Mass.

Cicero's Juno 16726..	{ Cicero 7657.....	{ Happy (P. S. 211 J. H. B.)	{ Vertumnus
			{ (P. S. 161 J. H. B.)
		{ Garenne	{ (F. S. 1575 J. H. B.)
	{ (P. S. 266 J. H. B.)	{ Fleur de l'Air (F. S. 1736 J. H. B.)	{ (F. S. 1575 J. H. B.)
	{ Juno Grey 16722.....	{ Grey King 169.....	{ Duke (P. S. 76 J. H. B.)
		{ Lily Grey	{ (F. S. 770 J. H. B.)
	{ (P. S. 452 J. H. B.)	{ Juno (F. S. 768 J. H. B.)	

Rioter Alpha 3d 34073.—Yield of milk, 233 lbs. 2 oz.; yield of butter, 17 lbs. 1½ oz.; test made from October 28 to November 4, 1888; age, 3 years and 3 months; estimated weight, 650 lbs.; grain fed daily, 13 lbs. oats, 14 lbs. shorts, 10 lbs. corn meal and 2 lbs. oil meal; property of D. F. Appleton, Ipswich, Mass.

Rioter Alpha 3d 34073.....	{ Rioter Hugo Pogis 13457	{ Orloff's Stoke Pogis 11157.....	{ Orloff 3143.
			{ Cheerful of St. Lam- bert 8348.
		{ Niobe of St. Lambert 12969.	{ Stoke Pogis 3d 2238.
	{ Rioter Alpha 10091....		{ Estelle of St. Lambert 7011.
		{ Jason Jr. 3270.....	{ Jason 1550.
		{ Chansonnette 5695.....	{ Lady Reynolds 3808.
			{ Westchester 1266.
			{ Clochette d'Or 5696.

Hilda A. 3d 16636.—Yield of milk, 246 lbs. 15 oz.; yield of butter, 17 lbs. 1 oz. (official); test made from May 25 to 31, 1886; age, 4 years and 10 months; weight, 1,240 lbs.; totals of grain fed during test, crushed oats 86 lbs., corn meal 31 lbs., bran 22 lbs., oil meal 17 lbs., pea meal 21 lbs.; total grain for 7 days, 177 lbs.; property of Frederic Bronson, Greenfield Hill, Conn.

Hilda A. 3d 16636.....	{ Footstep 5163.....	{ Wanderer 3014.....	{ Signal 1170.
			{ Cosette 3874.
		{ Fadette of Verna 6814..	{ On I. of J.
	{ Hilda A. 3951.....		{ Fairy of Verna 6813, imp.
		{ Chief Justice 252.....	{ Sam Weller 271, imp.
		{ Hilda 942.....	{ Dairy Maid 992.
			{ Sam Weller 271, imp.
			{ Hebe 943, imp.

Lionette 18038.—Yield of milk, $19\frac{1}{2}$ qts. per day; yield of butter, 17 lbs. 1 oz.; test made from July 4 to 10, 1887; age, 5 years and 1 month; estimated weight, 800 lbs.; grain fed during test, 4 qts. corn meal, 7 qts. oat meal, $11\frac{1}{2}$ qts. pea meal, 1 qt. oil meal and 3 qts. middlings daily; property of D. F. Appleton, Ipswich, Mass.

Lionette 18038.....	{	Cicero 7657.....	{	Happy (P. S. 211 J. H. B.)	{	Vertumnus		
						(P. S. 161 J. H. B.)	Garenne	
		Zingaratta 17016.....		Fleur de l'Air 12702, imp.		(F. S. 1575 J. H. B.)		
				Signal (F. S. 278 J. H. B.)				
				Zingara (F. S. 1864 J. H. B.)				

Minnie of Oxford 12806.—Yield of milk, 247 lbs.; yield of butter, 17 lbs.; test made from August 10 to 16, 1886; age, 9 years and 5 months; estimated weight, 750 lbs.; grain fed daily, 8 qts. ground corn and oats and 2 qts. oil meal; property of Frederick Loeser, Somerville, N. J.

Minnie of Oxford 12806.	{	Stoke Pogis 2d 2414.....	{	Stoke Pogis 1259, imp.
		Matilda 2d 5471.....		Matilda 3239, imp.

Frolic's Pride 31667.—Yield of milk, 201 lbs. 12 oz.; yield of butter, 17 lbs.; test made from June 24 to 30, 1887; age, 4 years and 2 months; estimated weight, 900 lbs.; grain fed daily, 4 lbs. corn meal, 2 lbs. oil meal and 16 lbs. bran; property of A. H. Cooley, Little Britain, N. Y.

Frolic's Pride 31667.....	{	Mahkeenac 3290.....	{	Cinnabar 1739.....	{	Matchless 906.		
						Peredot 2388.		
		Arthur's Frolic 4438, imp.		Europa 176.....		Jupiter 93.		
						Alphea 171.		

Cetewayo's Lily 18950.—Yield of milk, 261 lbs. 4 oz.; yield of butter, 17 lbs. (official); test made from June 30 to July 7, 1886; age, 5 years and 5 months; weight, 950 lbs.; grain fed during test, 45 lbs. corn meal, 21 lbs. crushed oats and $19\frac{1}{2}$ lbs. pea meal; property of James Stillman, Briarcliff Farm, Sing Sing, N. Y.

Cetewayo's Lily 18950	{	Cetewayo.....	{	Romulus.....	Hero (P. S. 90 J. H. B.)
				(P. S. 181 J. H. B.)	Stella (F. S. 705 J. H. B.)
		Lily (P. S. 166 J. H. B.)		Musique	
				(F. S. 1096 J. H. B.)	
				Jacquot.....	Stockwell 3d
				(P. S. 24 J. H. B.)	Jeanneton
		(F. S. 237 J. H. B.)			
		La Rocque			
		(F. S. 933 J. H. B.)			

Sibyl's Fancy 25942.—Yield of milk, 182 lbs. 12 oz.; yield of butter, 17 lbs.; test made from April 18 to 24, 1887; age, 5 years; grain fed during test, 18 lbs. daily of mixed corn, oats and middlings; property of George E. Jones, Litchfield, Conn.

Sibyl's Fancy 25942..	{	Forget-me-not 6201.....	{	Farmer's Glory (F. S. 274 J. H. B.)		
				Erica (F. S. 1946 J. H. B.)		
		Sibyl (P. S. 345 J. H. B.)		Taurus (P. S. 156 J. H. B.)	Sans Peur	
					(F. S. 201 J. H. B.)	
				Rose (F. S. 1514 J. H. B.)		
				Lily (F. S. 1436 J. H. B.)		

St. Lambert's Violet 25278.—Yield of milk, 283 lbs.; yield of butter, 16 lbs. 12 oz.; test made from November 7 to 14, 1888; age, 4 years and 9 months; estimated weight, 1,100 lbs.; grain fed daily, 5 lbs. oat chop, 2 lbs. corn chop, 2 lbs. oil meal and 7 lbs. bran; property of W. B. Von Richthofen, Denver, Col.

St. Lambert's Violet 25278.	{	Stunner 9679.....	{	Linden Butter Boy 5982.	{	Butter Boy 3243.
				Lady Mary Lawrence 6138.		
				Violet 3d 3240, imp.		
				Laval 506.....		Defiance 196, imp.
		Lily of St. Lambert 5120.		Pride of Windsor 483, imp.		Lisette 492, imp.

Butterstamp Lass 19517.—Yield of milk, 19 qts. per day; yield of butter, 16 lbs. 11 oz.; test made from Aug. 25 to 31, 1886; age, 3 years, 11 months; estimated weight, 750 lbs.; grain fed during test, 3 qts. corn meal, 8 qts. oat meal and 8 qts. middlings, daily; property of D. F. Appleton, Ipswich, Mass.

Butterstamp Lass 19517.....	{	Ramapo 4679.....	{	Miletus 3186.....	{	Domino of Darlington 2459.
				Premium of Darlington 5572		
				Rioter 2d 469, imp.		
				Europa 176.		
		Schonemunk Lass 9126.		On I. of J. Maid of Five Oaks 7178, imp.		

Sicilienne 25010, imp.—Yield of milk, 162 lbs. 8 oz.; yield of butter, 16 lbs. 11 oz.; test made from June 14 to 21, 1887; age, 8 years and 2 months; estimated weight, 900 lbs.; grain fed daily, 4 qts. corn and oats, 1 qt. pea meal, and 4 qts. bran; property of M. Erskine Miller, Staunton, Va.

Chansonnette 2d 29672.—Yield of milk, 237 lbs. 14 oz.; yield of butter, 16 lbs. 9 oz.; test made from Sept. 16 to 23, 1888; age, 4 years and 2 months; estimated weight, 900 lbs.; grain fed daily, 10 lbs. corn meal, 14 lbs. ground oats, 16 lbs. shorts and 2 lbs. oil meal; property of D. F. Appleton, Ipswich, Mass.

Chansonnette 2d 29672	{	Young Pedro 9033.....	{	Pedro 3187.....	Domino of Darlington 2459.
				Eurotas 2454.	
				Rioter Alpha 10091...	Chansonnette 5695.
		Chansonnette 5695.....	{	Westchester 1266.....	Inachus 928.
				Clytemnestra 2455.	
				Clochette d'Or 5696...	Duke 404.
			Emma Washington 1663.		

Dark and Fair 24468, imp.—Yield of milk, 167 lbs. 8 oz.; yield of butter, 16 lbs. 9 oz.; test made from June 7 to 14, 1887; age, 6 years and 2 months; estimated weight, 900 lbs.; grain fed daily, 4 qts. bran, 4 qts. ground corn and oats, 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Dark and Fair 24468..	{	Nero 7266.....	{	Carlo 5559.....	{	Hero (P. S. 126 J. H. B.)
				Pretty Maid 7012, imp.		
				(P. S. 180 J. H. B.)		
				Bossy (P. S. 215 J. H. B.)		
				Cowslip		
		On I. of J.				(P. S. 24 J. H. B.)

Mrs. Knickerbocker 19367.—Yield of milk, 190 lbs. 4 oz.; yield of butter, 16 lbs. 8½ oz.; test made from June 23 to 30, 1887; age, 8 years and 1 month; estimated weight, 850 lbs.; no grain fed during test, grass only; property of James Stillman, Sing Sing, N. Y.

Mrs. Knickerbocker 19367.....	{	Bingo 1811.....	{	Motley 515	{	Jack Horner 514.
			{	Bessie 139, imp.	{	Meg Merrilies 1372.
	{	Miss Beauty 4053.....	{	Apis 1206.....	{	Collamore's Atlantic 739
			{	Miss Blossom 1986.....	{	Undine 1864. Cœur de Lion 318. Dotty Dimple 377.

Cocotte 11958.—Yield of milk, 172 lbs. 15 oz.; yield of butter, 16 lbs. 8½ oz.; test made from May 21 to 28, 1887; age, 11 years and 3 months; estimated weight, 825 lbs.; grain fed daily, 12 lbs. corn meal, 4 lbs. bran, 4 lbs. oil meal; property of James Stillman, Sing Sing, N. Y.

Cocotte 11958.....	{	Hero (P. S. 90 J. H. B.).....	{	Welcome (F. S. 172 J. H. B.)
		Belle (F. S. 302 J. H. B.)	{	Musique (F. S. 1096 J. H. B.)

Lady Alexis 26916.—Yield of milk, 244 lbs. 14 oz.; yield of butter, 16 lbs. 8 oz.; test made from June 18 to 24, 1887; age, 3 years and 6 months; weight, 840 lbs.; grain fed daily, 2 quarts corn and oats, ground; property of W. H. Kennedy, Lincoln, N. Y.

Lady Alexis 26916....	{	Duke of Albany 3899....	{	Grand Duke Alexis 1040	{	On I. of J. Victorine Lachaise
			{	Katydidn't 2734, imp.	{	2740, imp.
	{	Belle of Maple Grove 11334.....	{	Asteroid 858.....	{	Clement 115. Lilac 340.
			{	Madam Juny 11333.....	{	Express 328. Parepa 1136.

Edy Signal 19430.—Yield of milk, 250 lbs. 8 oz.; yield of butter, 16 lbs. 8 oz.; test made from Sept. 21 to 28, 1887; age, 5 years; grain fed daily, 6 lbs. bran and shorts, 8 lbs. corn and oats and 4 lbs. oil meal; property of H. M. Baum, Frankfort, Ind.

Edy Signal 19430.....	{	Signal Jr. 7166.....	{	Signal 1170.....	{	Marias 760. Pansy Morris 2060.
			{	Alda 3873.....	{	Grand Duke Alexis 1040. Archie 1112.
	{	Edy Bashan 2d 16098....	{	Grand Duke Alexis 1040	{	On I. of J. Victorine Lachaise
			{	Edy Bashan 1032.....	{	2740, imp. Bronx Bashan 145. Edy 1032.

Lady Hugo 29430.—Yield of milk, 239 lbs. 8 oz.; yield of butter, 16 lbs. 7 oz.; test made from July 15 to 21, 1887; age, 3 years and 6 months; estimated weight, 750 lbs.; grain fed during test, 2 qts. corn meal, 6 qts. oats, 6 qts. bran and 1 pint oil meal; property of L. E. Hill, Denver, Col.

Lady Hugo 29430.....	{	Combination 1389.....	{	Polonius 2513.....	{	Sarpedon 930. Leda 790.
			{	Lady Mel 429.....	{	McClellan 4th 85. Mel 2d 57.
	{	Calpurnia 13367.....	{	Compeer 2367.....	{	Son of Alpheia 562. Bella Donna 1727.
			{	Rosanne's Maid 8700....	{	Orioff 3143. Rosanne 1320.

Pedroletta 26597.—Yield of milk, 269 lbs. 10 oz.; yield of butter, 16 lbs. 6½ oz.; test made from March 26 to April 2, 1888; age, 4 years; estimated weight, 900 lbs.; grain fed daily, 17 lbs. ground oats, 12 lbs. corn meal, 16 lbs. middlings and 2 lbs. oil meal; property of D. F. Appleton, Ipswich, Mass.

Pedroletta 26597.....	{	Royalty 7210.....	{	Pedro 3187.....	{	Domino of Darlington 2459.
					{	Enrotas 2454.
				Royal Princess 2370..	{	Daniel Webster 403.
					{	Princess Royal 24 1005.
	{	Romilly 14346.....	{	Signal (F. S. 278 J. H. B.)		
			{	Daisy (F. S. 1835 J. H. B.)		

Petra 19267.—Yield of milk, 238 lbs.; yield of butter, 16 lbs. 6 oz.; test made from September 23 to 30, 1887; age, 5 years and 7 months; estimated weight, 850 lbs.; grain fed daily, 8 qts. ground oats and corn and 8 qts. bran; property of H. M. Baum, Frankfort, Ind.

Petra 19267.....	{	Le Brocq's Prize 3350..	{	On I. of J.	
		Matin 7768.....	{	Horace (P. S. 94 J. H. B.)	
				Cigarette	
				(F. S. 1629 J. H. B.)	
				(F. S. 1962 J. H. B.)	
Petrus 5563.....	{	Marins 760.....	{	Willie Boy 434.	
				Lady Mary 1148.	
		Pet Anna 1608.....	{	Marmion 359.	
				Lillie Fair 1607.	

Jersey Jane 38308.—Yield of milk, 222 lbs. 8 oz.; yield of butter, 16 lbs. 4½ oz.; test made from May 22 to 29, 1888; age, 2 years and 1 month; estimated weight, 750 lbs.; grain fed daily, 6 lbs. corn meal and 3 lbs. oil meal; property of J. R. Anderson, Jr., Lee, Va.

Jersey Jane 38308.....	{	Jersey Express 5771, imp.			
		{			Peter Norman 1238.
Jane Riley 11455.....			Doesticks 2387.....	Dolly 1556.	
			Juliana 3d 4173.....	Vermont 893.	
				Juliana 2236.	

Sparks 41041.—Yield of milk, 236 lbs. 8 oz.; yield of butter, 16 lbs. 4½ oz.; test made from November 21 to 28, 1886; age, 3 years; estimated weight, 900 lbs.; grain fed daily, about 8 quarts of ground corn and oats; property of Richardson Bros., Davenport, Iowa.

Sparks 41041.....	{	Combination 4389.....	{	Polonius 2513.....	{	Sarpedon 930.
				Leda 799.		
	{	Lady Mel 429.....	{	McClellan 4th 85.		
				Mel 2d 57.		
	{	Romp Lawrence 13819..	{	Boton 4328.....	{	One Ton 2000.
				Boma 4834.		
			Dearborn Lawrence 8824	{	Lord Lawrence 1414.	
					Lady Carlotta 5334.	

Onnolee 23804.—Yield of milk, 186 lbs. 4 oz.; yield of butter, 16 lbs. 4 oz.; test made from April 14 to 21, 1887; age, 6 years and 6 months; estimated weight, 800 lbs.; grain fed daily, 8 lbs. corn meal, 4 lbs. bran, 2 lbs. middlings and 2 lbs. oil meal; property of James Stillman, Sing Sing, N. Y.

Onnolee 23804.....	{	Bingo 2d 6749.....	{	Bingo 1811.....	{	Motley 515.
					Bessie 139.	
	{	Mrs. Bannister 23803..	{	Madge Livingston 6695.	{	Padisha 1623.
						Madge Motley 3413.
	{		{	Bingo 1811.....	{	Motley 515.
						Bessie 139.
				Dulcinea 4052.....		Apis 1206.
						Daisy 455.

Eltekeh 28266.—Yield of milk, 213 lbs. 11 oz.; yield of butter, 16 lbs. 4 oz. (official); test made from May 25 to 31, 1886; age, 2 years and 2 months; weight, 850 lbs.; totals of grain fed during test, crushed oats 64 lbs., corn meal 31 lbs., bran 23 lbs., linseed oil cake meal 19 lbs., pea meal 21 lbs.; total amount of grain 158 lbs.; property of Frederic Bronson, Greenfield Hill, Conn.

Eltekeh 28266.....	{	Footstep 5163.....	{	Wanderer 3014.....	{	Signal 1170.
				Fadette of Verna 6814..	{	Cosette 3874.
		Effie of Hillside 1521...	{	Nero 13, imp.	{	On I. of J.
						Fairy of Verna 6813, imp.
		Evelina 446.....	{	Prince of Orange 184.		
			{	Edith 447.		

Chansonnette 5695.—Yield of milk, 16 qts. per day; yield of butter, 16 lbs. 4 oz.; test made from March 4 to 10, 1887; age, 10 years and 5 months; estimated weight of cow, 1,000 lbs.; grain fed during test, 6 qts. corn meal, 2 qts. pea meal, 6 qts. oat meal, 6 qts. bran, daily; property of D. F. Appleton, Ipswich, Mass.

Chansonnette 5695.....	{	Westchester 1266.....	{	Inachus 928.....	{	Rioter 2d 469, imp.	
					{	Dido 1234.	
	{			Clytemnestra 2455.....	{	Mercury 432.	
					{	Leda 799.	
	{		Clochette d'Or 5696.....	{	Duke 404.....	{	Jerry 15.
						{	Gipsy 2d 737.
Emma Washington 1663..					{	Black Thorne 329.	
					{	Martha Washington 869.	

Maud's Sultana 19518.—Yield of milk, 18½ qts. per day; yield of butter, 16 lbs. 4 oz.; test made from June 25 to July 1, 1887; age, 4 years and 7 months; estimated weight, 800 lbs.; grain fed during test, 3 qts. corn meal, 7 qts. oat meal, 2 qts. pea meal, 1 qt. oil meal and 3 qts. middlings, daily; property of D. F. Appleton, Ipswich, Mass.

Maud's Sultana 19518.	{	Ramapo 4679.....	{	Miletus 3186.....	{	Domino of Darlington 2459.			
					{	Premium of Darlington 5572			
				{			Eurotas 2454.....	{	Rioter 2d 469, imp.
				Princess Maude 7177, imp.		{	Europa 176.		

Damask Rose 22065.—Yield of milk, 218 lbs. 2 oz.; yield of butter, 16 lbs. 3¼ oz.; test made from July 12 to 18, 1886; age, 5 years and 5 months; estimated weight, 800 lbs.; grain fed daily, 2 qts. corn meal, 2 qts. oat meal, 2 qts. bran and 1 qt. oil meal; property of Frederick Loeser, Somerville, N. J.

Damask Rose 23065...	{	Bobby (P. S. 308 J. H. B.)	{	Vertumnus.....	{	Duke (P. S. 76 J. H. B.)
				(P. S. 161 J. H. B.)	{	Coomassie
					{	(F. S. 1442 J. H. B.)
				Young Rose.....	{	Orange Peel
				(P. S. 43 J. H. B.)	{	(F. S. 129 J. H. B.)
				Hero (F. S. 230 J. H. B.)	{	Rose (F. S. 339 J. H. B.)
				{		Lily 2d (P. S. 147 J. H. B.)
Pansy (F. S. 229 J. H. B.)						

Comanca 19389.—Yield of milk, 218 lbs.; yield of butter, 16 lbs. 3 oz.; test made from June 13 to 20, 1887; age, 4 years and 4 months; property of Richardson Bros., Davenport, Iowa.

Comanca 19389.....	{	Combination 4389.....	{	Polonius 2513.....	{	Sarpedon 930.
			{	Lady Mel 429.....	{	Leda 799.
	{	Miss Bianca 12517.....	{	Faust 503.....	{	McClellan 4th 85.
			{	Miss Millie 12264.....	{	Mel 2d 57.
					{	On I. of J.
					{	Fanny 1343.
					{	Ishmael 1215.
					{	Bessie Ring 12175.

Nigella 7895.—Yield of milk, 215 lbs. 12 oz.; yield of butter, 16 lbs. 3 oz.; test made from April 4 to 11, 1887; age, 8 years and 9 months; estimated weight, 750 lbs.; grain fed daily, 8 lbs. corn meal, 2 lbs. oil meal and 8 lbs. bran; property of James Stillman, Sing Sing, N. Y.

Nigella 7895.....	{	Fast Boy 2606.....	{	Bon Ton 1636.....	{	Autocrat 1065.
			{	Artless 3992.....	{	Bontanti 388.
	{	Nitella 4423.....	{	The Squire 1298.....	{	Autocrat 1065.
			{	Nimmie 968.....	{	Atlanta 402.
					{	Mr. Toodles 377.
					{	Mattie 964.
					{	Sam Weller 271.
					{	Nora 956.

Period 42640.—Yield of milk, 230 lbs. 11 oz.; yield of butter, 16 lbs. 3 oz.; test made from March 15 to 22, 1888; age, 3 years and 11 months; estimated weight, 800 lbs.; grain fed daily, 18 qts. ground oats and corn; property of Richardson Bros., Davenport, Iowa.

Period 42640.....	{	Combination 4389.....	{	Polonius 2513.....	{	Sarpedon 930.
			{	Lady Mel 429.....	{	Leda 799.
	{	Coma 29330.....	{	Combination 4389.....	{	McClellan 4th 85.
			{	Metella 3905.....	{	Mel 2d 57.
					{	Polonius 2513.
					{	Lady Mel 429.
					{	Mogul 532.
					{	Clio 2d 1248.

Lady of Dryden 27642.—Yield of milk, 328 lbs.; yield of butter, 16 lbs. 3 oz.; test made from June 10 to 17, 1887; age, 6 years, 1 month; weight, 870 lbs.; grain fed during test, 2 qts. corn meal, 2 qts. middlings and 1 qt. oil meal, daily; property of Wm. E. Brown, West Dryden, N. Y.

Lady of Dryden 27642.....	{	Sultan of New York 6186.....	{	Azimuth 1412.....	{	Marius 760.
			{	Asia 2161.....	{	Zenith 1261.
	{	Lady of Venice 13342.....	{	Lord Charlton 5463.....	{	Southampton 117.
			{	Charlton Caroline 11724.....	{	Narcissa 1161.
					{	Baritone 1075.
					{	Asia 2161.
					{	Baritone 1075.
					{	Caroline 2d 2019.

Orphan Duchess 3d 21284.—Yield of milk, 231 lbs. 12 oz.; yield of butter, 16 lbs. 3 oz.; test made from June 23 to 30, 1888; age, 6 years and 4 months; estimated weight, 850 lbs.; grain fed daily, 4 qts. corn meal, 1 qt. oil meal and 6 qts. bran; property of D. W. Voyles, Crandall, Ind.

Orphan Duchess 3d 21284.....	{	Balboa 1214.....	{	Duke of Grauholt 1035, imp.		
			{	Ibex 2724, imp.	{	Clive 319.
	{	Orphan Duchess 4519.....	{	Prize Duke 942.....	{	Jersey Prize 1267, imp.
			{	Jersey Duchess 1266, imp.		

Jennette Darling 10702.—Yield of milk, 215 lbs. 7 oz.; yield of butter, 16 lbs. 2 oz.; test made from June 26 to July 2, 1887; age, 9 years; grain fed during test, 18 lbs. equal parts corn meal, oat meal and bran with $4\frac{1}{2}$ lbs. oil meal, daily; weight of cow, 950 lbs.; property of E. L. Briggs, Wilton Junction, Iowa.

Jennette Darling 10702.....	{	Man of Ipswich 1510.....	{	Agawam 597.....	{	On I. of J.
			{	Maid of Ipswich 1346, imp.	{	Daisy of Ipswich 598, imp.
	{	Jenny B. 4190.....	{	Young Major 214.....	{	Major 75.
			{	Tulip 1793, imp.	{	Brenda 789, imp.

Lady Rareripe 23081.—Yield of milk, 199 lbs.; yield of butter 16 lbs. 1 oz.; test made from July 18 to 24, 1886; age, 3 years, 4 months; grain fed daily, 9 qts. cooked cotton-seed, 9 qts. corn meal, 9 qts. shorts and 3 qts. oil meal; property of Mat. Mahorner, Macon, Miss.

Lady Rareripe 23081.	{	Tormentor 2d 7124.....	{	Tormentor 3533.....	{	Khedive (P. S. 103 J. H. B.)
			{	Su Lu 4705.....	{	Angela (F. S. 1607 J. H. B.)
	{	Lady Dove 4418.....	{	Clifton Dasher 1119.....	{	Rioter 670, imp.
			{	Nellie 4th 1941.....	{	Angela 1682.

Nora Stoke Pogis 34687.—Yield of milk, 248 lbs. 8 oz.; yield of butter, 16 lbs. 1 oz.; test made from June 24 to July 1, 1888; age, 3 years, 2 months; estimated weight, 850 lbs.; grain fed daily, $5\frac{1}{2}$ lbs. corn meal, $5\frac{1}{2}$ lbs. oil meal, $6\frac{3}{4}$ lbs. bran, $2\frac{1}{4}$ lbs. middlings and 3 lbs. oats; property of A. D. McBride, Rochester, N. Y.

Nora Stoke Pogis 34687.	{	Exile of St. Lambert 13657.....	{	Bachelor of St. Lam- bert 4558.....	{	Orloff 3143.
			{	Allie of St. Lambert 24991.....	{	Charity of St. Lam- bert 6638.
	{	Eva Locust 21050.....	{	Gerry 2d 7217.....	{	Stoke Pogis 3d 2238.
			{	Eva Gold Ear 15836.....	{	Kathleen of St. Lam- bert 5122.

Donna Signal 29407.—Yield of milk, 243 lbs.; yield of butter, 16 lbs. 1 oz.; test made from July 1 to 8, 1888; age, 3 years and 11 months; estimated weight, 725 lbs.; grain fed daily, 9 lbs. bran, 5 lbs. corn meal, 2 lbs. cotton-seed meal and 2 lbs. pea meal; property of Jacob L. Thomas, Knoxville, Tenn.

Donna Signal 29407.....	{	Dunraven 7950.....	{	Auchentoroly 3494.....	{	Cerdie 1204.
			{	Tenella 6712.....	{	Agnes Sorel 2162.
	{	Donna Fay 6294.....	{	Bluetooth 1821.....	{	Signal 1170.
			{	Trudie 2d 4084.....	{	Alda 3873.

Vivian 15813.—Yield of milk, 193 lbs. 8 oz.; yield of butter, 16 lbs.; test made from Nov. 18 to 25, 1886; age, 4 years and 6 months; grain fed daily, 6 qts. corn meal, 6 qts. oats and 6 qts. shorts; property of W. H. Haley, North Wilmington, Mass.

North Wilmington, Mass.					Miles Standish of Co-	
				King of Scituate 3622....	hasset 3553.	
	{	Black Defiance 4014....	{		Jersey Belle of Scituate	
						7828.
Vivian 15813.....	{		{	Belle of Scituate 7977....	Pharos 3552.	
					Jersey Belle of Scituate	
					7828.	
	{	Juno W. 8553.....	{	Major Domo 2161.....	Autocrat 1065.	
					Meg 673.	
					Cœur de Lion 318.	
				Corinne 707.....	Bonfanti 388.	

Ashantee's Lady 35951.—Yield of milk, 129 lbs. 12 oz.; yield of butter, 16 lbs.; test made from Sept. 24 to 30, 1887; age, 2 years and 5 months; estimated weight, 700 lbs.; grain fed daily, 4 qts. corn meal and 6 qts. bran; property of M. Erskine Miller, Staunton, Va.

property of M. Erskine Miller, Staunton, Va.					
Ashantee's Lady 35951	{	King of Ashantee 6677.....	{	Fairfield 4733.....	{ Commander in Chief 3035.
				Cosette 3874.	
				Neptune (P. S. 14 J. H. B.)	
				Coomassie 11874....	{ Jersey Pride
					(F. S. 1716 J. H. B.)

Frolic of Chestnutwood 19405.—Yield of milk, 251 lbs. 4 oz.; yield of butter, 16 lbs.; test made from June 15 to 21, 1887; age, 5 years; estimated weight, 800 lbs.; grain fed daily, 4 lbs. corn meal, 2 lbs. oil meal and 12 lbs. of bran; property of A. H. Cooley, Little Britain, N. Y.

of bran; property of A. H. Cooley, Little Britain, N. Y.			
Frolic of Chestnutwood 19405...	{	Mahkeenac 3290.....	{ Cinnabar 1739..... { Matchless 906.
			{ Peridot 2388.
			{ Jupiter 93.
			{ Europa 176..... { Alpha 171.
			{ Arthur's Frolic 4438, imp.

Riotaletta 2d 34495.—Yield of milk, 136 lbs. 4 oz.; yield of butter, 15 lbs. 15½ oz.; test made from June 8 to 14, 1887; age, 1 year and 11 months; estimated weight, 600 lbs.; grain fed daily, 4 qts. bran, 4 qts. corn and oats and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

1 qt. pea meal; property of M. Erskine Miller, Sturanton, Va.				
		Farmer's Glory 5196.		
Riotaletta 2d 34495...	{ Golden Ray 10669.....	Rayon d'Or 7516.....	Coomassie 11874.	
		Faustine 10354.....	Antianira 2457.	
	{ Riotaletta 29037.....	Barry's Eddington 2250.	Rioter 2d 469.	
				Katy Lewis 2453.
			Cecco 1673.	
		Idaletta 11843.....	Tyca 4559.	

Tormentor's Rexea 38906.—Yield of milk, 176 lbs. 8 oz.; yield of butter, 15 lbs. 14 oz.; time of test June 6 to 13, 1888; age, 2 years and 11 months; estimated weight, 750 lbs.; grain fed daily, 30 lbs., one-half ground oats and one-half corn-hearts; property of M. M. Gardner, Nashville, Tenn.

Tormentor's Rexea 38906.....	{	Denise's Tormentor 11843.....	{	Tormentor 3533.....	{ Khedive (P. S. 103 J. H. B.)
				Angela (F. S. 1607 J. H. B.)	
	{	Denise 8281.....	Top-Sawyer 1504.		
			Lucy 4577.		
	{	Gilt Edge Pexea 32942.....	{	Champion of America 1567.	
				Annie Hill 4866.	
				Stand Point 4508.	
				Alpheia Rexea 12079.....	{ Lilley Rex 9852.

Miss May of St. Lambert 37084.—Yield of milk, 138 lbs. 4 oz.; yield of butter, 15 lbs. 14 oz.; test made from July 7 to 14, 1887; age, 2 years and 2 months; estimated weight, 650 lbs.; grain fed daily, 21 qts. mixed corn, bran and oats; property of C. A. Reeser, Springfield, Ohio.

Miss May of St. Lambert 37084.....	{ Rubano 8806.....	{ Sir George of St Lambert 6036.....	{ Stoke Pogis 3d 2238.
		{ Nina of St. Lambert 12963.....	{ Pride of Windsor 483.
			{ Stoke Pogis 3d 2238.
	{ May Day Stoke Pogis 28353.....	{ Stoke Pogis 3d 2238.....	{ Jessamine of St. Lambert 5125.
		{ May Day of St. Lambert 5109.....	{ Stoke Pogis 1259, imp.
			{ Marjoram 3239, imp.
			{ Lord Lisgar 1066.
			{ Ierne 1373.

Proctor's Pansy 25688.—Yield of milk, 276 lbs. 15 oz.; yield of butter, 15 lbs. 13 oz.; test made from July 10 to 17, 1887; age, 3 years and 4 months; estimated weight, 1,050 lbs.; grain fed daily, 8 qts. oats, middlings and shorts mixed, equal parts; property of T. R. Proctor, Utica, N. Y.

Proctor's Pansy 25688.....	{ Lena's Lenox 6059.....	{ Lenox 1593.....	{ Pansy's Albert 1008.
		{ Lena 1976.....	{ St. Perpetua 3648.
	{ La Pucelle 16829.....		{ Hector 791.
			{ Laurel 1973.
		{ Mercutio 4591.....	{ St. Martin 1482.
		{ Nannette of Allerton 8513.....	{ Negress 7651.
			{ Clifton Prince 1640.
			{ Brinca 4019.

Cabinet 22662, imp.—Yield of milk, 149 lbs. 13 oz.; yield of butter, 15 lbs. 10 oz.; test made from Feb. 14 to 20, 1887; age, 6 years and 4 months; grain fed during test, 8 qts. corn meal, 6 qts. oats, 1 qt. oil meal, 2 qts. bran, daily; property of Archer N. Martin, Summit, N. J.

Cabinet 22662..... (F. S. 3830 J. H. B.)	{ Pilot (P. S. 183 J. H. B.)	{ Khedive 103.....	{ Leo (F. S. 198 J. H. B.)
		{ Phillis (F. S. 839 J. H. B.)	{ Coomassie (F. S. 1442 J. H. B.)
	{ On I. of J.		

May Dee 18058.—Yield of milk, 206 lbs. 8 oz.; yield of butter, 15 lbs. 10 oz.; test made from Sept. 29 to Oct. 5, 1886; age, 4 years and 6 months; estimated weight, 850 lbs.; grain fed during test, 38 lbs., daily, of mixed corn-hearts, oats, oil meal and middlings; property of Miller & Sibley, Franklin, Pa.

May Dee 18058.....	{ Eupidee 4097.....	{ Duke of Darlington 2460.....	{ Sarpedon 930.
		{ Leda 799.....	{ Eurotas 2454.
			{ Jupiter 93.
	{ May of Lakeside 10826..		{ Europa 176.
		{ Micawber 4796.....	{ Mr. Micawber 556.
			{ Rosa of Lakeside 2d 10241.
		{ Dove 3d 10823.....	{ Micawber 4796.
			{ Dove 7824.

Belle's Esperanza 12053.—Yield of milk, 154 lbs. 12 oz.; yield of butter, 15 lbs. 9½ oz.; test made from November 22 to 29, 1887; age, 6 years and 8 months; estimated weight, 775 lbs.; grain fed daily, 10 lbs. corn meal, 3 lbs. oil meal and 2 lbs. middlings; property of James Stillman, Sing Sing, N. Y.

Belle's Esperanza 12053.	{	Uproar 4609.....	{ Duke of Darlington 2460	{ Sarpedon 930.
			{ Eurotas 2454.	
	{	Belle Warren 7978.....	{ Prince of Warren 1512..	{ Southamton 117, imp.
			{ Erica 2970.....	{ Golddrop 222, imp.
				{ Southamton 117, imp.
				{ Daffodil 335.

Carlo's Rosebud 18223.—Yield of milk, 184 lbs. 8 oz.; yield of butter, 15 lbs. 8 oz.; test made from Sept. 30 to Oct. 7, 1887; age, 7 years; estimated weight, 850 lbs.; grain fed daily, 8 lbs. corn meal and 4 lbs. bran; property of James Stillman, Sing Sing, N. Y.

Carlo's Rosebud 18223..	{	Carlo 5559.....	{ Hero (P. S. 136 J. H. B.)	{ Dick (F. S. 171 J. H. B.)
			{ Cowslip	{ (P. S. 24 J. H. B.)
	{	Khedive's Rosebud, 18173, imp.	{ Pretty Maid 7012.....	{ Yankee (P. S. 27 J. H. B.)
				{ On I. of J.

La Pucelle 16829.—Yield of milk, 271 lbs. 2 oz.; yield of butter, 15 lbs. 8 oz.; test made from Sept. 20 to 26, 1886; age, 7 years and 5 months; estimated weight, 1,100 lbs.; grain fed during test, 8 qts. oats and 4 qts. shorts, daily; property of T. R. Proctor, Utica, N. Y.

La Pucelle 16829.....	{	Mercurio 4591.....	{ St. Martin 1482.....	{ On I. of J.
			{ Negress 7651.....	{ Beauty 5311, imp.
	{	Nannette of Allerton 8515..	{ Clifton Prince 1640.	{ Frank Warren 1490.
			{ Brinca 4019.....	{ Negro Girl 7650.
				{ Prince Charles 816.
				{ Hebe 183.
				{ Plon-Plon 1111.
				{ Binge 2852.

Fancy Bee 37496.—Yield of milk, 116 lbs. 8 oz.; yield of butter, 15 lbs. 8 oz.; test made from August 22 to 29, 1888; age, 3 years and 7 months; estimated weight, 900 lbs.; grain fed daily, 16 quarts of ground corn and oats; property of Maury Jersey Farm, Columbia, Tenn.

Fancy Bee 37496.....	{	Fancy's Harry 9777.....	{ Lord Harry 3445.....	{ Top-Sawyer 1404.
			{ Landseer's Fancy 2876	{ Duchess of Bloomfield 3653.
	{	Beeswax 9807.....	{ Top-Sawyer 1404.....	{ Landseer 331.
			{ Bisma 3d 1870.....	{ Young Fancy 97.
				{ Marius 760.
				{ Emblem 90.
				{ Fairfax 530.
				{ Bisma 1669.

Cora of Hillside 25253.—Yield of milk, 300 lbs. 7 oz.; yield of butter, 15 lbs. 7 oz.; test made from May 13 to 19, 1887; age, 5 years and 9 months; estimated weight, 800 lbs.; grain fed during test, 8 qts. per day, one-third corn and two-thirds oats, ground; property of David Strong, Winsted, Conn.

Cora of Hillside 25253.	{	Lucullus 2695.....	{ Sweepstakes Duke 1905.	{ Merry Boy
				{ (P. S. 61 J. H. B.)
	{	Cora of Lebanon 11637..	{ Lucy 4577, imp.	{ Superb
				{ (F. S. 353 J. H. B.)
			{ Lucullus 2695.....	{ Sweepstakes Duke 1905.
				{ Lucy 4577, imp.
				{ Le Gelé 2694.
				{ Gazellette 3d 6032.....
				{ Gazellette 4589.

Koffee's Grisette 30433.—Yield of milk, 147 lbs. 8 oz.; yield of butter, 15 lbs. 7 oz.; test made from June 6 to 12, 1887; age, 2 years and 8 months; estimated weight, 700 lbs.; grain fed daily, 4 qts. bran, 4 qts. ground corn and oats, and 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Koffee's Grisette 30433	{	King Koffee 5542.....	{	Sir George.....	{	Guy Fawkes
				(P. S. 221 J. H. B.)	(F. S. 251 J. H. B.)	
				Coomassie 11874.....	Brown Bess	
					(F. S. 755 J. H. B.)	
	{	Bonnie Grisette 24 19526	{	Duke of Darlington 2460	{	Neptune
						(P. S. 14 J. H. B.)
						Jersey Pride
						(F. S. 1716 J. H. B.)
{	Bonnie Grisette 6979....	{	Rajah of Green Vale 2533	{	Sarpedon 930.	
					Eurotas 2454.	
					Grisette 596.	

Lorita 33750.—Yield of milk, 231 lbs. 10 oz.; yield of butter, 15 lbs. 6½ oz.; test made from September 15 to 22, 1886; age, 3 years; property of Richardson Bros., Davenport, Iowa.

Lorita 33750.....	{	Combination 4389.....	{	Polonius 2513.....	{	Sarpedon 930.
				Lady Mel 429.....		Leda 799.
						McClellan 4th 85.
						Mel 2d 57.
{	Moragina 26344.....	{	Kapper's Victor 12340..	{	Kapper 2033.	
					Albert's Clover 2000.	
					Schoharie 12245.	
{	Belle Morgan 26219....	{	Victoria 218.	{		

Preference 26343.—Yield of milk, 313 lbs. 2 oz.; yield of butter, 15 lbs. 5 oz.; test made from March 3 to 10, 1888; age, 4 years and 1 month; weight, 960 lbs.; grain fed daily, 9 lbs. oats, 6 lbs. corn meal, 3 lbs. cotton-seed meal and 3 lbs. oil meal; property of Mrs. Mary A. Thomas, Bristol, Conn.

Preference 26343.....	{	Dominie 11135.....	{	Monarch of the Sea 5079	{	Brown Duke 2190.
				Buckwheat 13840.....		Queen of Ocean 3659.
						Mirth 1181.
						Begum 7029.
{	Buckwheat 13840.....	{	Mirth 1181.....	{	Magnet 968.	
					Molley's Medusa 3033.	
					Mirth 1181.	
{	Begum 7029.....	{	Baggage 7028.	{		

Daffy Wilcox 2d 18317.—Yield of milk, 256 lbs. 7 oz.; yield of butter, 15 lbs. 5 oz.; test made from July 9 to 16, 1886; age, 4 years and 2 months; weight, 820 lbs.; grain fed daily, 4 gallons ground corn and oats; property of W. Gettys, Athens, Tenn.

Daffy Wilcox 2d 18317	{	Secretary 4074.....	{	Brown Prince 2583.....	{	Jason of Deerfoot 1636.
				Elsie Dinsmore 5834....		Lilly Parks 3764.
						Jason of Deerfoot 1636.
						Hattie Parks 3776.
{	Daffy Wilcox 4046.....	{	Wethersfield 966.....	{	Albert 44.	
					Grinnella 2d 1303.	
					Tom Dasher 420.	
{	Daffy 2669.....	{	Lady Orton 2667.	{		

Farmer's Pride 12284.—Yield of milk, 252 lbs.; yield of butter, 15 lbs. 4 oz.; test made from June 11 to 18, 1886; age, 5 years and 2 months; estimated weight, 1,050 lbs.; grain fed during test, 6 qts. shorts, daily; property of T. R. Proctor, Utica, N. Y.

Farmer's Pride 12284.	{	Farmer's Glory 5196.....	{ Grey King.....	{ Duke (P. S. 76 J. H. B.)
			{ (P. S. 169 J. H. B.)	{ Lily Grey
	{	Bonheur.....	{	{ (F. S. 770 J. H. B.)
			{ (F. S. 1651 J. H. B.)	
{	Startled Fawn 7837.....	{	Prince of Warren 1512..	{ Southampton 117, imp.
				{ Golddrop 222, imp.
			{ Princess of Warren 3745.	{ Jasper 850.
				{ Laura 1163.

Hilda 18178, imp.—Yield of milk, 196 lbs. 9 oz.; yield of butter, 15 lbs. 4 oz.; test made from Jan. 6 to 13, 1886; age, 10 years; estimated weight, 1,025 lbs.; grain fed during test, 3 qts. oats, 2 qts. middlings, 2 qts. oil meal and 1 qt. pea meal, daily; property of T. R. Proctor, Utica, N. Y.

Oaklands Lilly 14881.—Yield of milk, 247 lbs. 4 oz.; yield of butter, 15 lbs. 4 oz.; test made from February 12 to 18, 1888; age, 6 years and 10 months; weight, 1,000 lbs.; grain fed during test, 3 lbs. oats, 12 lbs. corn meal, 3 $\frac{3}{4}$ lbs. middlings and 2 $\frac{1}{4}$ lbs. oil meal, daily; property of Mrs. A. N. Martin, Summit, N. J.

Oaklands Lilly 14881.	{	Rambler of St. Lambert- 5285.	{	Stoke Pogis 3d 2238....	{ Stoke Pogis 1259, imp.
				{ Bessy of St. Lambert 5482.	{ Marjoram 3239, imp.
	{	Minette of St. Lambert- 9774.	{		{ Butler 3065.
					{ May Bud of St. Lam- bert 5105.
{		{	Stoke Pogis 3d 2238....	{ Stoke Pogis 1259, imp.	
				{ Marjoram 3239, imp.	
				{ Lord Lisgar 1066.	
			{ May Day of St. Lambert 5109.	{ Ferne 1373	

Lady Bingo 24160.—Yield of milk, 172 lbs. 8 oz.; yield of butter, 15 lbs. 4 oz.; test made from March 11 to 18, 1887; age, 6 years; estimated weight, 800 lbs.; grain fed daily, 8 lbs. corn meal, 6 lbs. bran, 2 lbs. middlings and 4 lbs. oil meal; property of James Stillman, Sing Sing, N. Y.

Lady Bingo 24160....	{	Bingo 3d 6749.....	{	Bingo 1811.....	{	Motley 515.
				{	Bessie 139.	
	{	Mrs. Knickerbocker 19367.....	{	Madge Livingston 6695.	{	Padisha 1623.
					{	Madge Motley 3443.
	{		{	Bingo 1811.....	{	Motley 515.
					{	Bessie 139.
{					Miss Beauty 4053.....	{
					{	Miss Blossom 1986.

St. John's Daisy 28388, imp.—Yield of milk, 196 lbs. 8 oz.; yield of butter, 15 lbs. 4 oz.; test made from July 29 to August 5, 1888; age, 5 years and 10 months; estimated weight, 750 lbs.; grain fed daily, about 18 qts. bran, 4 qts. oat meal, 2 qts. corn and oil meal; property of P. J. Cogswell, Rochester, N. Y.

St. John's Daisy 28388.	{	St. John.....	{	Carlo (P. S. 180 J. H. B.)	{ Hero (P. S. 126 J. H. B.)
				{ (P. S. 316 J. H. B.)	{ Pretty Maid
	{	Letacq Bess.	{	Unique	{ (F. S. 1193 J. H. B.)
				{ (F. S. 1035 J. H. B.)	

Angetta 19404.—Yield of milk, 275 lbs. 8 oz.; yield of butter, 15 lbs. 4 oz.; test made June 9 to 15, 1887; age, 5 years and 2 months; estimated weight, 600 lbs.; grain fed daily, 4 lbs. corn meal, 2 lbs. oil meal and 16 lbs. bran; property of A. H. Cooley, Little Britain, N. Y.

Angetta 19404.....	Mahkeenac 3290.....	Cinnabar 1739.....	Matchless 906.
		Peredot 2388.	
		Jupiter 93.	
	Lady Anerly 10595.....	Europa 176.....	Alpha 171.
		Jersey Goldust 2134....	Young Yankee (P. S. 62 J. H. B.)
		Anne Page 2690.....	Clelie 361 (P. S. 64 J. H. B.) Son of Alpha 562. Princess 1154.

Koffee's Lily 25515.—Yield of milk, 134 lbs. 8 oz.; yield of butter, 15 lbs. 3½ oz.; test made from June 7 to 14, 1887; age, 3 years and 7 months; estimated weight, 850 lbs.; grain fed daily, 4 qts. bran, 4 qts. corn and oats, 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

Koffee's Lily 25515....	King Koffee 5532.....	Sir George.....	Guy Fawkes (F. S. 251 J. H. B.)
		(P. S. 221 J. H. B.)	Brown Bess (F. S. 755 J. H. B.)
		Coomassie 11874.....	Neptune (P. S. 14 J. H. B.)
	Le Gros' Lily of the Valley 2d 13386.....	Jersey Pride (F. S. 1716 J. H. B.)	
		Tom McGreevy 1692....	Son of Rosa 663. Princess 1154.
		Le Gros' Lily of the Valley 11537.....	Vertumnus (P. S. 161 J. H. B.) Lydie (F. S. 619 J. H. B.)

Nutley Darling 22412.—Yield of milk, 251 lbs. 11 oz.; yield of butter, 15 lbs. 3½ oz.; test made from Nov. 9 to 16, 1887; age, 4 years, 3 months; estimated weight of cow, 800 lbs.; grain fed during test, 11 lbs. corn meal, 9 lbs. ground oats, 10 lbs. middlings, 2 lbs. oil meal and 1 lb. pea meal per day; property of D. F. Appleton, Ipswich, Mass.

Nutley Darling 22412.	Duke of Darlington 2460.....	Sarpedon 930.....	Mercury 432.
		Europa 176.....	
	Nutley Alma 13581.....	Eurotas 2454.....	Rioter 2d 469, imp.
		Snap (F. S. 254 J. H. B.) St. Clémentaise (F. S. 412 J. H. B.)	Europa 176.

Cricket's Minnie 26270.—Yield of milk, 106 lbs.; yield of butter, 15 lbs. 3½ oz.; test made from January 2 to 9, 1888; age, 4 years and 3 months; estimated weight, 850 lbs.; grain fed daily, 20 quarts corn and oats, ground, equal parts; property of Wm. J. Webster, Columbia, Tenn.

Cricket's Minnie 26270.....	Prince Harry 5176.....	Lord Harry 3445.....	Top-Sawyer 1404.
		Duchess of Bloomfield 3653.	
	Cricket of Belle Vue 9570.....	Coonie 7817.....	Trocadero 1422. Lily 7th 4711.
		Lord Lawrence 1414....	Lawrence 61.
		Lady Mary 1148, imp.	
		Beauty of Belle Vue 6953, imp.	

Daisy Stillson 28174.—Yield of milk, 225 lbs.; yield of butter, 15 lbs. 3 oz.; test made from October 8 to 15, 1886; age, 4 years and 6 months; estimated weight, 950 lbs.; grain fed daily, 4 qts. oats, 2 qts. corn meal, 4 qts. middlings and 2 qts. bran; property of Peter D. Hulst, East Penfield, N. Y.

Daisy Stillson 28174..	{ Seneca Chief 4098.....	{ Lord Shaftesbury 2439.	{ Litchfield 674. Chestnut 1888. Litchfield 674. Bessie Allen 3719.
	{ Nickel 2d 23352.....	{ Guide 3521.....	{ Beacon Comet 16th 1282. Mocha 2d 4881. Hockanum 792. Dot 4th 914.

Khedive's Fancy 18180.—Yield of milk, 219 lbs. 2 oz.; yield of butter, 15 lbs. 3 oz.; test made from June 28 to July 4, 1886; age, 9 years and 3 months; estimated weight, 1,000 lbs.; grain fed daily, 7 qts. corn meal, 2 qts. oil meal, 4 qts. crushed oats and 4 qts. shorts; property of F. C. Sayles, Pawtucket, R. I.

Khedive's Fancy 18180.....	{ Khedive (P. S. 103 J. H. B.)....	{ Leo (F. S. 198 J. H. B.) Coomassie (F. S. 1442 J. H. B.) Rose (F. S. 1158 J. H. B.)

Lady Monmouth 15173.—Yield of milk, 258 lbs. 4 oz.; yield of butter, 15 lbs. 3 oz.; test made from June 10 to 16, 1887; age, 7 years; estimated weight, 900 lbs.; grain fed daily, 4 lbs. corn meal, 2 lbs. oil meal and 12 lbs. bran; property of A. H. Cooley, Little Britain, N. Y.

Lady Monmouth 15173	{ Prince of Warren 1512.....	{ Southampton 117, imp. Golddrop 222, imp. Optimus 1607.....	{ Sir Charles 131. Carrie 3804. Hector 129. Julia 3893.

Coma 29330.—Yield of milk, 223 lbs. 9 oz.; yield of butter, 15 lbs. 2½ oz.; test made from May 17 to 24, 1886; age, 4 years and 9 months; property of Richardson Bros., Davenport, Iowa.

Coma 29330.....	{ Combination 4389.....	{ Polonius 2513.....	{ Sarpedon 930. Leda 799. McClellan 4th 85. Mel 2d 57.

Alice McClellan 25237.—Yield of milk, 233 lbs. 12 oz.; yield of butter, 15 lbs. 2 oz.; test made from March 23 to 30, 1888; age, 5 years; estimated weight, 850 lbs.; grain fed daily, 8 lbs. corn meal, 4 lbs. oil meal, 2 lbs. middlings and 4 lbs. bran; property of James Stillman, Sing Sing, N. Y.

Alice McClellan 25237..	{ Snedens 4882.....	{ Ash Bud 3317.....	{ Niobe Duke 2361. Ash Leaf 5423. Narragansett 536. Bessie 1417.

Kitty Livingston 34303.—Yield of milk, 145 lbs. 8 oz.; yield of butter, 15 lbs. 2 oz.; test made from Nov. 22 to 29, 1887; age, 3 years; estimated weight, 700 lbs.; grain fed daily, 10 lbs. corn meal, 3 lbs. oil meal, 2 lbs. middlings; property of James Stillman, Sing Sing, N. Y.

Kitty Livingston 34303	Gen. James A. Garfield 14874.	Troy 5404.....	Prince of Grafton 2721.
		Lady Evelyn 3d 5605.	
	Lady Livingston 33374.	Mollie Garfield 12172....	Bel Caliph 1432.
			Maple Dale 2907.
		Garibaldi H. 7106.....	On I. of J. Anna of Mountain Side 15544.
		Rainbow 2d 13962.....	Doesticks 2387.
			Rainbow 6493.

Albert's Lilley 19489.—Yield of milk, 21½ qts. per day; yield of butter, 15 lbs. 2 oz.; test made from March 23 to 29, 1887; age, 4 years and 5 months; estimated weight, 700 lbs.; grain fed during test, 2 qts. corn meal, 2 qts. pea meal, 8 qts. ground oats, 1 qt. oil meal and 8 qts. middlings; property of D. F. Appleton, Ipswich, Mass.

Albert's Lilley 19489..	Albert Rex 7724.....	Duke of Darlington 2460.	Sarpedon 930.
		Eurotas 2454.	
	Lilley Rex 9852.....	Couch's Lily 3237.....	Albert 44.
			Lily Dale 3236.
		Prince of M. 2811.....	Rex 1330.
			May Abelle 3932.
		Lilley Russ 2d 9514.....	Champion of America 2d 2425.
			Lilley Russ 4543.

Lady Livingston 33374.—Yield of milk, 202 lbs.; yield of butter, 15 lbs. 2 oz.; test made from December 30, 1886, to January 5, 1887; age, 3 years and 9 months; estimated weight, 900 lbs.; grain fed during test, 4 qts. corn meal, 4 qts. oats, 1 qt. oil meal and 8 qts. bran, daily; property of George E. Peer, Rochester, N. Y.

Lady Livingston 33374..	Garibaldi H. 7106.....	On I. of J. Anna of Mountain Side 15544, imp.	
	Rainbow 2d 13962.....	Doesticks 2387.....	Peter Norman 1238.
			Dolly 1556.
		Rainbow 6493.....	Peter Norman 1238.
			Rachael 3d 2261.

Bessie Russ 2d 14649.—Yield of milk, 196 lbs. 15 oz.; yield of butter, 15 lbs. 1½ oz.; test made from May 1 to 7, 1887; age, 6 years; estimated weight, 900 lbs.; grain fed daily, 16 qts. ground oats and corn; property of Morgan & Brown, Columbia, Tenn.

Bessie Russ 2d 14649.	Bullion 2d 5246.....	Bullion 3079.....	Chief Justice 2d 1643.
		Hilda B. 3952.	
	Bessie Russ 14648.....	Hilda C. 3869.....	Chief Justice 252.
			Hilda 942.
		Bullion 3079.....	Chief Justice 2d 1643.
			Hilda B. 3952.
		Nellie D. 3871.....	Chief Justice 252.
			Nellie A. 1002.

King's Antoinette 40456.—Yield of milk, 103 lbs.; yield of butter, 15 lbs. 1 oz.; test made from July 17 to 24, 1887; age, 2 years and 3 months; estimated weight, 700 lbs.; grain fed daily, 4 qts. bran, 4 qts. corn meal, 1 qt. pea meal; property of M. Erskine Miller, Staunton, Va.

King's Antoinette 40456.....	{	King 2d 11570.....	{	King (P. S. 238 J. H. B.)	{	Young Prince (P. S. 182 J. H. B.)
			{	Fill Pail 24341, imp.	Judy (F. S. 1590 J. H. B.)	
	{	Lady Antoinette 24391..		Garibaldi.....	{	Pretender (P. S. 187 J. H. B.)
				{	Lady Alice (F. S. 1838 J. H. B.)	
				Castaledes (F. S. 2876 J. H. B.)		

Vera of Briarcliff 28687.—Yield of milk, 129 lbs. 8 oz.; yield of butter, 15 lbs. 1 oz.; test made from April 30 to May 7, 1887; age, 2 years and 4 months; estimated weight, 750 lbs.; grain fed daily, 12 lbs. corn meal, 3 lbs. oil meal, 4 lbs. middlings and 4 lbs. bran; property of James Stillman, Sing Sing, N. Y.

Vera of Briarcliff 28687	{	Young Garenne's Duke 6863.	{	Cicero 7657.....	{	Happy (P. S. 211 J. H. B.)	
				Young Garenne 13641..	{	Fleur de l'Air 12702, imp. Koffee (F. S. 233 J. H. B.)	
	{	Lady Horton 2d 15499..			{	Garenne (F. S. 1575 J. H. B.)	
					Vertumnus.....	{	Duke (P. S. 76 J. H. B.)
					(P. S. 161 J. H. B.)	{	Coomassie (F. S. 1442 J. H. B.)
				Lady Horton (F. S. 2170 J. H. B.)			

Sultan's Sultane 32854.—Yield of milk, 186 lbs. 10 oz.; yield of butter, 15 lbs. 1 oz.; test made from May 29 to June 5, 1888; age, 3 years and 2 months; estimated weight, 900 lbs.; grain fed daily, 3 qts. oat meal and 3 qts. bran; property of M. H. Messchert, Douglassville, Pa.

Sultan's Sultane 32854	{	Sultan of St. Saviour's 5328.	{	Cœur de Lion.....	{	Rex (P. S. 71 J. H. B.)
				(P. S. 140 J. H. B.)	{	Fougère (F. S. 914 J. H. B.)
				Sultane 2d 11373.....		{
				Sultane Americaine 11374	Duke Elie 5327, imp.	{
		Sultane 2d 11373.....	{	Rex (P. S. 71 J. H. B.)		
					{	Sultane (P. S. 7 J. H. B.)

Landseer's Fancy 2d 43184.—Yield of milk, 103 lbs. 3 oz.; yield of butter, 15 lbs. $\frac{1}{2}$ oz.; test made from May 25 to June 1, 1888; age, 1 year, 10 months and 20 days; estimated weight, 600 lbs.; grain fed daily, 12 quarts of corn and oats; property of Messrs. Webster & Morrow & Son, Columbia, Tenn.

Landseer's Fancy 2d 43184.....	{	Toltec 6831.....	{	Tormentor 3533.....	{	Khedive (P. S. 103 J. H. B.)
				Angela (F. S. 1607 J. H. B.)		
	{	Landseer's Fancy 2876.	Oonan 1485.....	{	Rajah 340. Omoo 1247.	
			{	Landseer 331.....	{	On I. of J. Dazzle 379, imp.
						Young Fancy 97.....

Plumida 23621.—Yield of milk, 153 lbs. 8 oz.; yield of butter, 15 lbs. $\frac{1}{2}$ oz.; test made from May 13 to 20, 1887; age, 3 years and 9 months; estimated weight, 820 lbs.; blue grass pasture only; property of Thos. C. Beer, Bucyrus, Ohio.

Plumida 23621.....	{	Warpole 3500.....	{	One Ton 2000.....	{	Ben Rajah 795.
			{	Nema 5378.....	{	Audrey 1447.
	{	Mildrida 6743.....	{	Hornbeam 2123.....	{	Marius 760.
			{	Memento 1913.....	{	Nettie 1613.
					{	Marius 760.
					{	Emily Hampton 1912.
					{	Lawrence 61.
					{	Motto 80.

Jersey Lily 14044.—Yield of milk, 246 lbs. 12 oz.; yield of butter, 15 lbs.; test made from May 22 to 29, 1886; age, 7 years and 4 months; estimated weight, 800 lbs.; grain fed daily, 8 lbs. corn meal, 2 lbs. bran and malt sprouts; property of James Stillman, Sing Sing, N. Y.

Jersey Lily 14044.....	{	Grey King.....	{	Duke (P. S. 76 J. H. B.)	{	Merry Boy
		(P. S. 169 J. H. B.)	{	Lily Grey	{	(P. S. 61 J. H. B.)
	{	On 1. of J.	{		{	Superb
			{		{	(F. S. 353 J. H. B.)

Cora of Arcadia 16151.—Yield of milk, 200 lbs. 4 oz.; yield of butter, 15 lbs.; test made from July 14 to 21, 1886; age, 5 years and 4 months; estimated weight, 900 lbs.; pasture only, no grain; property of Jacob Lusk, East Palmyra, N. Y.

Cora of Arcadia 16151..	{	Rocco 4517.....	{	Diamond Earl 3116.....	{	Longfellow 818.
			{	Fanti 1937.....	{	Favorita of Queens Co. 2825.
	{	Clio of Staatsburgh 2d 12540.	{	Samson Jr. 2723.....	{	Czar 251.
			{	Clio of Staatsburgh 4177	{	Fashion 1296.
					{	Dexter of Staatsburgh 1942.
					{	Susie 2d 778.
					{	Vermont 893.
					{	Countess 2d 2288.

Azuline 2d 3888.—Yield of milk, 238 lbs.; yield of butter, 14 lbs. $15\frac{3}{4}$ oz.; test made from Oct. 8 to 14, 1886; age, 11 years and 10 months; grain fed daily, boiled cotton-seed, corn meal and bran; property of W. B. Montgomery, Starkville, Miss.

Azuline 2d 3888.....	{	The Hub 1009.....	{	Motley 515.....	{	Jack Horner 514, imp.
			{	Bessie 139, imp.	{	Meg Merrilies 1372, imp.
	{	Azuline 3360, imp.				

Louisa Deming 23469.—Yield of milk, 230 lbs. 4 oz.; yield of butter, 14 lbs. 15 oz.; test made from March 23 to 29, 1887; age, 3 years and $5\frac{1}{2}$ months; grain fed during test, 4 lbs. ground oil cake, 3 lbs. ground oats, 7 lbs. wheat bran, 4 lbs. corn meal, daily; property of Mrs. Mary A. Thomas, Bristol, Conn.

Louisa Deming 23469..	{	Tunxes Chief 3705.....	{	Saugatuck 1144.....	{	Manfred 510.
			{	Tunxes Belle 4925.....	{	Rose Standish 1865.
	{	Lydia Deming 4399.....	{	Ishmael Hurd 1548.....	{	Success 2097.
			{	S. Hart's Belle 4396....	{	S. Hart's Belle 4396.
					{	Major Tunxes 1547.
					{	Buck's Kate 3463.
					{	Climax 1249.
					{	Dickinson's Belle 4395.

Nonsuch of Linwood 29028.—Yield of milk, 209 lbs. 3 oz.; yield of butter, 14 lbs. 14½ oz.; test made from July 22 to 29, 1888; age, 3 years and 11 months; weight, 720 lbs.; grain fed daily, 8 lbs. bran, 4 lbs. corn meal, 2 lbs. cotton-seed meal; property of Jacob L. Thomas, Knoxville, Tenn.

Nonsuch of Linwood 29028.	{	Gold Basis 4028.....	{	Gilderoy 2107	{	Magnetic 1428.
			{	Regina 2d 2475.....	{	Jeanne Le Bas 2476.
	{	Lady of Belle Vue 7705..	{	Lord Lawrence 1414....	{	Noble (F. S. 104 J. H. B.)
			{	Lady Burlington 1713...	{	Regina (F. S. 32 J. H. B.)
					{	Lawrence 61.
					{	Lady Mary 1148, imp.
					{	On I. of J.
					{	Favorite of the E'ms 1656, imp.

Etta M. 2d 30820.—Yield of milk, 287 lbs. 2 oz.; yield of butter, 14 lbs. 14 oz.; test made from April 23 to 30, 1888; age, 4 years and 5 months; estimated weight, 800 lbs.; grain fed daily, 8 quarts ground oats and corn, equal parts; property of D. D. Perry, Peabody, Kansas.

Etta M. 2d 30820.....	{	Gold Mine 7272.....	{	Royalist 2906.....	{	Duke (P. S. 76 J. H. B.)
			{	Dorian 6465.....	{	Regina (F. S. 32 J. H. B.)
	{	Etta M. 15901.....	{	Rodney 1941.....	{	Victor (P. S. 117 J. H. B.)
			{	Young Brunette 5138..	{	Rosette (F. S. 1232 J. H. B.)
					{	Lenape Chief 1052.
					{	Undine 1703.
					{	Excelsior of Jersey 949.
					{	Bennette 3141.

Classic 21402.—Yield of milk, 216 lbs.; yield of butter, 14 lbs. 13½ oz.; test made from April 20 to 27, 1888; age, 5 years; estimated weight, 850 lbs.; grain fed daily, 4½ lbs. pea meal, 3 lbs. oil meal, 4½ lbs. oat meal and 4 lbs. bran; property of H. M. Baum, Frankfort, Ind.

Classic 21402.....	{	Combination 4389.....	{	Polonius 2513.....	{	Sarpedon 930.
			{	Lady Mel 429.....	{	Leda 799.
	{	Income 19472.....	{	AuroraboreEllis 2408....	{	McClellan 4th 85.
			{	Niva 7523.....	{	Mel 2d 57.
					{	Umpire 1637.
					{	Lady of Walnut Grove 4837.
					{	Caen 2317.
					{	Countess Gisela 2820.

Pansy Blossom 22413.—Yield of milk, 315 lbs. 1 oz.; yield of butter, 14 lbs. 13½ oz.; test made from June 3 to 10, 1888; age, 5 years and 2 months; estimated weight, 800 lbs.; grain fed daily, 1 gallon of mill feed; property of W. Gettys, Athens, Tenn.

Pansy Blossom 22413..	{	Kitty's Royal Rex 6175..	{	Rex 1330.....	{	Colt Jr. 825.
			{	Kitty Cooke 8547.....	{	Conch's Lily 2337.
	{	Dye's Pansy Buttercup 14914.	{	Cussegago 6626	{	Lord Bronx 2d 1730.
			{	Glenmore Belle 4801....	{	Belle of Saybrook 6875.
					{	Young Baltimore Boy 3018.
					{	Dodona 4800.
					{	Saladin 447.
					{	Lucy Hansa 2122.

Maud Pogis 24240.—Yield of milk, 207 lbs.; yield of butter, 14 lbs. 12 $\frac{3}{4}$ oz.; test made from August 2 to 8, 1886; age, 3 years and 3 months; estimated weight, 775 lbs.; grain fed daily, 4 $\frac{1}{2}$ lbs. corn meal, 3 lbs. bran, 4 lbs. oat meal and 2 $\frac{1}{2}$ lbs. oil meal; property of Frederick Loeser, Somerville, N. J.

Maud Pogis 24240.....	{	West Wind 4289.....	{	Prince of the Herd 3329.	{	Wheatland 3d 1564.
			{	Rosalind of Glen Dale 7382.	{	Beaty's Choice 4305.
	{	Croens of St. Lambert 8351.	{	Stoke Pogis 3d 2238....	{	Wheatland 3d 1564.
						Rosa Lea of Glen Dale 7378.
						Stoke Pogis 1259, imp.
						Marjoram 3239, imp.
					Butter 2055.	
			Lolly of St. Lambert 5480		Camelia of St. Lambert 5106.	

Rioter's Zoe 19769.—Yield of milk, 239 lbs. 8 oz.; yield of butter, 14 lbs. 12 oz.; test made from June 21 to 27, 1887; age, 4 years, 3 months; estimated weight, 800 lbs.; grain fed during test, 25 lbs., daily, of mixed corn-hearts, oil meal, oats and middlings; property of Miller & Sibley, Franklin, Pa.

Rioter's Zoe 19769....	{	Stoke Pogis 5th 5987....	{	Stoke Pogis 1259, imp.		
			Marjoram 3239, imp.			
	{	Golden Zoe 3975.....	{	Golden Ear 1025.....	{	Faust 509.
					Gala 1375.	
			Zoe Mou 2704.....		Partisan 235.	
					Zoe Le Bas 1338.	

Louise of Lawnfield 14151.—Yield of milk, 268 lbs.; yield of butter, 14 lbs. 11 $\frac{1}{2}$ oz.; test made from March 31 to April 7, 1885; age, 6 years; property of Wm. S. Loomis, Holyoke, Mass.

Louise of Lawnfield 14151.....	{	Duke of Argyle 1517....	{ Nestor 773.....	{ Albert 44.
			{ Lady Mel 429.	
	{	Duchess of Argyle 2d 7568.	{ Marilla 2899.....	{ Le Brocq 752.
			{ Vinnie 1945.	
			{ Star of Bethlehem 1693.	{ Rob Roy 17, imp.
			{ Jenny 4th 132.	
			{ Duchess of Argyle 3758.	{ Jack Dasher 932.
				{ Berlin Daisy 3759.

Duchess of Darlington 13830.—Yield of milk, 274 lbs.; yield of butter, 14 lbs. 11 oz.; test made from Oct. 17 to 23, 1886; age, 8 years; weight, 780 lbs.; grain fed, 30 lbs. daily of mixed corn-hearts, oats, oil meal and middlings; property of Miller & Sibley, Franklin, Pa.

Duchess of Darlington 13830.	{	Duke of Darlington 2460	{	Sarpedon 930.....	{	Mercury 432.	
			{	Eurotas 2454.....	{	Europa 176.	
	{	Minnie Stevens 13059...	{	Dick Swiveller 159.....	{	Rioter 2d 469, imp.	
						{	Europa 176.
							Mollie 370.

Southern Daisy 38292.—Yield of milk, 108 lbs. 8 oz.; yield of butter, 14 lbs. 11 oz.; test made from May 27 to June 3, 1888; age, 2 years and 3 months; estimated weight, 750 lbs.; grain fed daily, 16 qts. oats and corn; property of Morgan & Brown, Columbia, Tenn.

Southern Daisy 38292.....	{	Southern Prince 10760.....	{	Forget-me-not 6291.....	{	Farmer's Glory 5196.		
			{	Erica (F. S. 1946 J. H. B.)	{	Pilot (F. S. 183 J. H. B.)		
	{	Myrrha 11299.....	{	Oxford Kate 13646.....	{	Verclut (F. S. 1846 J. H. B.)		
			{	Top-Sawyer 1404.....	{	Marius 760.		
							{	Emblem 90.
{	Marietta 1813.....	{						
			{	Verclut (F. S. 1846 J. H. B.)				

Princess of Trinity 23641, imp.—Yield of milk, 248 lbs.; yield of butter, 14 lbs. 10 oz.; test made from June 24 to July 1, 1885; age, 6 years; estimated weight, 1,075 lbs.; no grain fed; property of T. R. Proctor, Utica, N. Y.

Mary Justice 37449.—Yield of milk, 260 lbs. 12 oz.; yield of butter, 14 lbs. 9½ oz.; test made from March 3 to 10, 1888; age, 3 years and 10 months; weight, 925 lbs.; grain fed daily, 3 lbs. oil meal and 15 lbs. middlings; property of J. B. Allen & Son, Delavan, Ill.

Mary Justice 37449,...	Justice 9949.....	Royalist 3d 4500.....	{	Royalist 2906.
			{	Nelly 6456.
	Rose of Menard 13272...	Queen Tamora 9563.....	{	Henry Ward Beecher 2297.
			{	Tamora 5342.
		Willet 2503.....	{	Lord Baltimore 743.
			{	Morning 2d 5644.
		Rose of Sangamon 2d 9670.	{	Willet 2503.
			{	Rose of Sangamon 9621.

Carlo's Daisy 16702.—Yield of milk, 153 lbs. 14 oz.; yield of butter, 14 lbs. 9½ oz.; test made from April 6 to 13, 1888; age, 7 years; estimated weight, 700 lbs.; grain fed daily, 8 lbs. corn meal, 4 lbs. bran, 2 lbs. middlings and 1 lb. oil meal; property of James Stillman, Sing Sing, N. Y.

Carlo's Daisy 16702...	Carlo 5559.....	Hero (P. S. 126 J. H. B.)	{	Diek (F. S. 171 J. H. B.)
			{	Cowslip (P. S. 24 J. H. B.)
	Fair Daisy (F. S. 2591 J. H. B.)	Pretty Maid 7012.....	{	Yankee (P. S. 27 J. H. B.)
			{	On 1. of J.

Laundress 2d 24649.—Yield of milk, 138 lbs.; yield of butter, 14 lbs. 9 oz.; test made from Dec. 1 to 8, 1887; age, 4 years and 7 months; estimated weight, 750 lbs.; grain fed daily, 8 lbs. corn meal, 8 lbs. bran, 2 lbs. oil meal; property of James Stillman, Sing Sing, N. Y.

Laundress 2d 24649,...	Sir Joseph Peck 4978...	Dainty Boy 2955.....	{	Pierrot 636.
			{	Dainty 736.
	Laundress 13867.....	Mel 6th 2041.....	{	Rob Roy 17, imp.
			{	Mel 37.
		Brown Duke 2190.....	{	Chelton Duke 924.
			{	Black Bess 1788.
		Lady Caroline 2d 7628...	{	Bellini 1017.
			{	Lady Caroline 3674.

Saugus Lass 30542.—Yield of milk, 238 lbs. 10 oz.; yield of butter, 14 lbs. 9 oz.; test made from October 4 to 11, 1888; age, 4 years and 3 months; estimated weight, 850 lbs.; grain fed daily, 10 lbs. oats, 10 lbs. corn meal, 14 lbs. shorts and 2 lbs. oil meal; property of D. F. Appleton, Ipswich, Mass.

Saugus Lass 30542,...	Lord Darlington 7285...	Duke of Darlington 2460	{	Sarpedon 930.
			{	Eurotas 2454.
	Young Bosdet's Rose 30067.....	Marjoram 3239, imp.	{	Grey King (P. S. 169 J. H. B.)
			{	Violet (F. S. 967 J. H. B.)
		Lord Beaconsfield.....	{	Romulus (P. S. 181 J. H. B.)
		Bosdet's Rose 2d 17214..	{	Bosdet's Rose (F. S. 3076 J. H. B.)

Lily of Riverside 19599.—Yield of milk, 214 lbs.; yield of butter, 14 lbs. 9 oz.; test made from March 28 to April 3, 1887; age, 4 years, $1\frac{1}{2}$ months; estimated weight, 900 lbs.; grain fed daily, 12 qts., mixed, of ground corn, oats and ship stuff and 2 qts. oil meal; property of H. G. Westlake, Hillsdale, N. Y.

Lily of Riverside 19599	{ Blossom's Tennessee 6060.....	Top-Sawyer 1404.....	{ Marius 760. Emblem 90.
		Blossom of the Grange 6958.	{ Claimant (P. S. 84 J. H. B.) On I. of J.
	{ Lily of Oxford 12890...	Midas of Oxford 5986...	{ Stoke Pogis 1259, imp. Matilda 3238.
		Lily of St. Lambert 2d 12809.	{ Stoke Pogis 1259, imp. Lily of St. Lambert 5120

Golden Trudie 34535.—Yield of milk, 157 lbs. 10 oz.; yield of butter, 14 lbs. 9 oz.; test made from April 11 to 18, 1888; age, 7 years and 1 month; estimated weight, 700 lbs.; grain fed daily, 2 lbs. corn meal, 2 lbs. corn-hearts, 2 lbs. bran, 1 lb. oil meal and 1 lb. middlings; property of James Stillman, Sing Sing, N. Y.

Golden Trudie 34535...	{ Gold Finder 2225.....	Humboldt River 2137...	{ Jerry 15, imp. Hattie 2d 740.
		Lady Guilford 5066.....	{ Rubric 423. Jersey 3260.
	{ Trudie 277.....	Glengary 316.....	{ Jupiter 93. Edna 807.
		Edith 2d 805.....	{ Saturn 94. Edith 167.

Signal Fancy 30812.—Yield of milk, 106 lbs. 12 oz.; yield of butter, 14 lbs. 8 $\frac{1}{2}$ oz.; test made from Feb. 12 to 19, 1888; age, 2 years and 8 months; estimated weight, 900 lbs.; grain fed daily, 4 gallons corn and oats, equal parts, and 1 qt. cotton-seed meal; property of Webster & Morrow & Son, Nashville, Tenn.

Signal Fancy 30812...	{ Fancy's Harry 9777.....	Lord Harry 3443.....	{ Top-Sawyer 1404. Duchess of Bloomfield 3653.
		Landseer's Fancy 2876.	{ Landseer 331. Young Fancy 97.
	{ Lilly Signalda 23227.....	Signalda 4027.....	{ Signal 1170. Alda 3873.
		Belle of Tennessee 9573.	{ Doctor Wogg 3504. Belle of New York 6963.

Fair Dairy-maid 29839.—Yield of milk, 182 lbs. 4 oz.; yield of butter, 14 lbs. 8 oz.; test made from Feb. 13 to 19, 1887; age, 2 years and 4 months; estimated weight, 750 lbs.; grain fed daily, 4 lbs. crushed oats, $1\frac{1}{2}$ lbs. corn meal, $1\frac{1}{2}$ lbs. pea meal, 1 lb. oil meal and 2 lbs. shorts; property of C. W. H. Eicke, West Monterey, Pa.

Fair Dairy-maid 29839	{ Kenilworth 8091.....	Tressilian 3784.....	{ Hero of St. Peter's 2292. Bluebelle of St. Ouen's 6580.
		Madge Wildfire 11857...	{ Harry A. 2751. Bertha Morgan 4770.
	{ Fair Maid of Perth 13705	Le Brocq's Prize 3350..	{ On I. of J. Matin 7768.
		Evri 5282.....	{ Marius 760. Eve 456.

Viola of Briarcliff 37617.—Yield of milk, 152 lbs. 9 oz.; yield of butter, 14 lbs. 8 oz.; test made from May 31 to June 7, 1888; age, 2 years and 2 months; estimated weight, 650 lbs.; grain fed daily, 8 lbs. corn meal and 4 lbs. middlings; property of James Stillman, Sing Sing, N. Y.

Viola of Briarcliff 37617.....	{	Young Garenne's Duke 6863.	{	Cicero 7657.....	{	Happy (P. S. 211 J. H. B.)
				Fleur de l'Air 12702.		
	{	Violet of Briarcliff 24186	{	Young Garenne 13641..	{	Koffee (F. S. 233 J. H. B.)
				Garenne (F. S. 1575 J. H. B.)		
{		{	Domino of Darlington 2459.	{	Sarpedon 230.	
			Beauty of Darlington 5736.			
			{	Violet of St Ouen's 8626, imp.		

Maid of Berlin 12746.—Yield of milk, 157 lbs. 10 oz.; yield of butter, 14 lbs. 8 oz.; test made from April 14 to 21, 1887; age, 7 years and 1 month; estimated weight, 800 lbs.; grain fed daily, 8 lbs. corn meal, 4 lbs. bran, 2 lbs. middlings and 2 lbs. oil meal; property of James Stillman, Sing Sing, N. Y.

Maid of Berlin 12746...	{	Don Pedro of Bing- hamton 2974.....	{	Vernon 1071.....	{	Marius 760.
				Velvet 294.		
	{		{	Zodiac 1914.....	{	Euclid 520.
				Zenith 1361.		
{	Belle of Bayside 1457...	{	Young Pilgrim 302, imp.	{		
			Belle Bronx 989.....		Kearsarge 257.	
						Bronx 306.

Brown Coomassie 20322.—Yield of milk, 163 lbs. 8 oz.; yield of butter, 14 lbs. 8 oz.; test made from May 2 to 8, 1887; age, 6 years and 2 months; grain fed during test, 18 lbs., daily, of mixed corn, oats and middlings; property of George E. Jones, Litchfield, Conn.

Brown Coomassie 20322.....	{	King (P. S. 238 J. H. B.)	{	Young Prince.....	{	Khedive (P. S. 103 J. H. B.)
				(P. S. 182 J. H. B.)		Princesse (F. S. 1294 J. H. B.)
	{	Sassagua (F. S. 4194 J. H. B.)	{	Judy (F. S. 1590 J. H. B.)	{	

Milkgood 27828.—Yield of milk, 210 lbs. 14 oz.; yield of butter, 14 lbs. 7½ oz.; test made from May 30 to June 6, 1888; age, 4 years; estimated weight, 800 lbs.; grain fed daily, oil meal 2 lbs. 6 oz., pea meal 1 lb. 11 oz., bran 2 lbs. 8 oz., ground oats 4 lbs. 10 oz.; property of H. M. Baum, Frankfort, Ind.

Milkgood 27828.....	{	Lemon Peel of Francheville (P. S. 439 J. H. B.)	{	Orange Peel.....	{	Duke (F. S. 237 J. H. B.)
				(P. S. 288 J. H. B.)		Young Rose 2d (P. S. 202 J. H. B.)
	{	Tomboy 24348.....	{	Cyprus (F. S. 2089 J. H. B.)	{	
				Nonpareil		Orange Peel (F. S. 129 J. H. B.)
				(P. S. 37 J. H. B.)		Les Cateaux (F. S. 487 J. H. B.)
			Beauty (F. S. 1573 J. H. B.)			

Young Anne Lee 31668.—Yield of milk, 212 lbs. 8 oz.; yield of butter, 14 lbs. 7 oz.; test made from July 5 to 11, 1887; age, 4 years and 2 months; estimated weight, 700 lbs.; grain fed daily, 4 lbs. corn meal, 2 lbs. oil meal and 8 lbs. bran; property of A. H. Cooley, Little Britain, N. Y.

Young Anne Lee 31668	{	Mahkeenac 3290.....	{	Cinnabar 1739.....	{	Matchless 906.
						Peridot 2388.
				Europa 176.....		Jupiter 93.
						Alphea 171.
	{	Lady Anerly 10595.....	{	Jersey Goldust 2134....	{	Young Yankee
						(P. S. 62 J. H. B.)
						Clelie 3d
	{		{	Anne Page 2690.....	{	(P. S. 64 J. H. B.)
						Son of Alphea 562.
						Princess 1154.

Seraphine 2d 37451.—Yield of milk, 212 lbs. 4 oz.; yield of butter, 14 lbs. 6 oz.; test made from May 25 to June 1, 1887; age, 3 years and 7 days; weight, 780 lbs.; grain fed daily, from 6 to 10 qts. corn-hearts; property of J. B. Allen & Son, Delavan, Ill.

Seraphine 2d 37451...	{	Suzerain 8408.....	{	Baronet	{	Farmer's Glory
				(P. S. 307 J. H. B.)		(F. S. 274 J. H. B.)
						Angela
				Sultane 5th 18189.....	{	(F. S. 1607 J. H. B.)
	{	Seraphine 19262.....	{		{	Royalist 2906.
						Sultane (P. S. 7 J. H. B.)
				Fresco 5236.....	{	Cecco 1673.
						Adria 4284.
	{		{	Rose of Menard 13272..	{	Willet 2503.
						Rose of Sangamon 2d
						9670.

Como of Briarcliff 35849.—Yield of milk, 155 lbs.; yield of butter, 14 lbs. 6 oz.; test made from May 31 to June 7, 1888; age, 2 years and 6 months; estimated weight, 650 lbs.; grain fed daily, 8 lbs. corn meal and 4 lbs. mid-dlings; property of James Stillman, Sing Sing, N. Y.

Como of Briarcliff 35849.....	{	Domino of Darlington 2459.	{	Sarpedon 930.....	{	Mercury 432.
						Europa 176.
				Beauty of Darlington 5736.	{	Smith of Darlington 2458
						Grace Darlington 5574.
	{	Cocotte 11958.....	{	Hero (P. S. 90 J. H. B.)	{	Welcome
						(F. S. 172 J. H. B.)
						Musique
				Belle (F. S. 302 J. H. B.)		(F. S. 1096 J. H. B.)

Prince's Nellie 23719.—Yield of milk, 234 lbs. 12 oz.; yield of butter, 14 lbs. 6 oz.; test made from May 24 to 31, 1888; age, 5 years and 1 month; estimated weight, 1,000 lbs.; grain fed daily, 13 lbs. oats and corn chop; property of E. E. Harrison, West Liberty, Iowa.

Prince's Nellie 23719.	{	Iowa Prince 2727.....	{	Sweepstakes Duke 1905.	{	Merry Boy
						(P. S. 61 J. H. B.)
						Superb
						(F. S. 353 J. H. B.)
	{	Nellie Harrison 2d 23093	{	Maid of the Mist 2546, imp.		
				Alton Prince 1994.....	{	King of the Prairie 1981.
						Belle of the Prairie 2d
	{		{	Nellie Harrison 23092..	{	4681.
						Capt. Muldoon 2489.
						Lolly 2700.

Champion Flower 20887.—Yield of milk, 226 lbs. 8 oz.; yield of butter, 14 lbs. 6 oz.; test made from July 5 to 11, 1886; age, 4 years and 8 months; grain fed daily, a mixture of boiled cotton-seed, corn meal and bran; property of W. B. Montgomery, Starkville, Miss.

Champion Flower 20887.....	{	Champion of America 1567.....	{	May Boy 705.....	{	Bismarck 292.
			{	Pansy 1019.....	{	Crocus 1787.
					{	Living Storm 173.
					{	Dolly 2d 1030.
	{	April Flower 4421.....	{	The Hub 1009.....	{	Motley 515.
						Bessie 139.
						Mr. Micawber 556.
				Mint 2549.....		Magnolia 2543.

Redacta 26954.—Yield of milk, 197 lbs. 11 oz.; yield of butter, 14 lbs. 5 oz.; test made from March 13 to 20, 1887; age, 3 years and 9 months; estimated weight, 975 lbs.; grain fed daily, 13 qts. corn meal, oats and ship stuff and 2 lbs. oil meal; property of H. G. Westlake, Hillsdale, N. Y.

Redacta 26954.....	{	Millennium 4791.....	{	Butter Boy 3243.....	{	Balsora 2357.
						Oak Leaf 4769.
				Millicent 2d 7229.....		Lord Lawrence 1414.
						Millicent 4871.
	{	Hillsdale Gem 16640.....	{	Sonnambula 3750.....	{	Omri 2916.
						Silkweed 3200.
						Peterkin 2451.
				Kate Bashford 15082....		Ernanian 7550.

Lady Delphine 28460.—Yield of milk, 277 lbs.; yield of butter, 14 lbs. 4 oz.; test made from June 25 to July 1, 1888; age, 8 years and 3 months; estimated weight, 1,000 lbs.; grain fed daily, 9 lbs. corn meal, 9 lbs. oil meal, 4½ lbs. bran, 3 lbs. middlings and 3 lbs. ground oats; property of A. D. McBride, Rochester, N. Y.

Lady Delphine 28460..	{	Baldwin's Frolic 13840..	{	Koba Jr. 2471.....	{	Koba 416.
						La Roc 1061.
				Playful 4893.....		Bedford 1084.
						Lady Emma 4892.
	{	Lady Sarah 4931.....	{	Pride of Guilford 2138..	{	Humboldt River 2137.
						Jersey 3290.
						Humboldt River 2137.
				Lita 4930.....		Jersey 3290.

Venice 18192, imp.—Yield of milk, 250 lbs. 11 oz.; yield of butter, 14 lbs. 4 oz.; test made from June 10 to 17, 1886; age, 7 years and 4 months; estimated weight, 1,075 lbs.; grain fed during test, 6 qts. shorts, daily; property of T. R. Proctor, Utica, N. Y.

Juliette Guion 13143.—Yield of milk, 187 lbs. 8 oz.; yield of butter, 14 lbs. 4 oz.; test made from Dec. 1 to 8, 1887; age, 6 years and 7 months; estimated weight, 750 lbs.; grain fed daily, 8 lbs. corn meal, 8 lbs. bran and 2 lbs. oil meal; property of James Stillman, Sing Sing, N. Y.

Juliette Guion 13143..	{	Walnut Chief 3130.....	{	Grand Duke Alexis 1040.	{	On L. of J.
						Victorine Lachaise 2740.
				Lacilla 2735, imp.		imp.
	{	Pride of Walnut Farm 11501.	{	Lord Lawrence 1414....	{	Lawrence 61, imp.
						Lady Mary 1148, imp.
						Orpheus 1219.
				Oma 5067.....		Eddie No. 2, 2824.

Gilderoy's Enid 32924.—Yield of milk, 235 lbs. 8 oz.; yield of butter, 14 lbs. $\frac{1}{4}$ oz.; test made from May 18 to 25, 1888; age, 4 years; estimated weight, 800 lbs.; grain fed daily, 18 lbs. ground oats and corn; property of Webster & Morrow & Son, Nashville, Tenn.

Gilderoy's Enid 32924.	{	Gilderoy 2107.....	{	Magnetic 1428.....	{	Islander 561.
			{	Jeanne Le Bas 2476...	{	Azalea 1443.
					{	Noble (F. S. 71 J. II. B.)
					{	DairyPride (F.S. 348 J.H.B.)
	{	Enid 3d 19582.....	{	Bul-Bul 3194.....	{	Magnetic 1428.
					{	Flora 61.
			{	Enid 1482.....	{	Rajah 340.
					{	Eliza 619.

Hennette 11624.—Yield of milk, 144 lbs. 8 oz.; yield of butter, 14 lbs. $3\frac{1}{2}$ oz.; test made from Dec. 11 to 18, 1887; age, 8 years and 7 months; estimated weight, 750 lbs.; grain fed daily, 8 lbs. corn meal, 2 lbs. oil meal and 8 lbs. bran; property of James Stillman, Sing Sing, N. Y.

Hennette 11624.....	{	Fast Boy 2606.....	{	Bon Ton 1636.....	{	Autocrat 1065.
			{	Artless 3992.....	{	Bonfanti 388.
					{	Autocrat 1065.
					{	Atlanta 402.
	{	Hennie 3335.....	{	Careless Boy 1297.....	{	Sam Weller 271.
					{	Diana 672.
			{	Haidee 971.....	{	Sam Weller 271.
					{	Hebe 943.

Rioter's Violet 33774.—Yield of milk, 154 lbs.; yield of butter, 14 lbs. 3 oz.; test made from August 21 to 27, 1887; age, 2 years and 1 month; estimated weight, 650 lbs.; grain fed during test, 6 qts. oats and 8 qts. bran, daily; property of Chas. E. Hill, Denver, Col.

Rioter's Violet 33774.	{	Oxford Rieter 5992.....	{	Midas of Oxford 5986...	{	Stoke Pogis 1259, imp.
			{	La Belle Petite 5472.....	{	Matilda 3238.
					{	Stoke Pogis 3d 2238.
					{	La Petite Mère 5470.
	{	Merlin's Violet 16430....	{	Merlin 3684.....	{	Gilderoy 2107.
					{	Sapphira 3112.
			{	Violet of Windyside 8538	{	Stockbridge 2733.
					{	Nepte 5899.

Lucy McClung 20368.—Yield of milk, 204 lbs. 13 oz.; yield of butter, 14 lbs. 3 oz.; test made from May 13 to 20, 1887; age, 5 years and 7 months; estimated weight, 850 lbs.; grain fed daily, $3\frac{1}{2}$ gallons ground oats and corn; property of W. Gettys, Athens, Tenn.

Lucy McClung 20368.	{	Monmouth Cyrene 6835.	{	Gaspard of Meadow Brook 3525.....	{	Clitus of Meadow Brook 2218.
					{	Cyrene 3d 1239.
			{	Cyrene 3d 1239.....	{	Monmouth 210.
					{	Cyrene 137.
	{	Baronetti 8425.....	{	Baronet 2240.....	{	Lord Lisgar 1066.
					{	Amelia 484.
			{	Marquise 2d 2868.....	{	Majestic 152.
					{	Marquise 523.

Bee Princess 40345.—Yield of milk, 201 lbs. 7 oz.; yield of butter, 14 lbs. $2\frac{5}{8}$ oz.; test made from May 20 to 27, 1888; age, 3 years and 10 days; estimated weight, 800 lbs.; grain fed daily, 12 qts. of corn, bran, oats and cotton-seed, ground together; property of M. Lothrop, Marshall, Texas.

Bee Princess 40345.....	{ Prince of Melrose 4819.....	{ Stoke Pogis 3d 2238.....	{ Stoke Pogis 1259, imp.
		{ Princess of St. Lambert 5484.....	{ Marjoram 3239, imp.
	{ Busy Bee 3d 25166.....	{ Carnival 5110.....	{ Baffer 3055.
		{ Busy Bee 6336.....	{ Juno of St. Lambert 5110
			{ The Hub 1009.
			{ Romp Ogden 2d 4764.
			{ Top-Sawyer 1404.
			{ Bisma 3d 1870.

Gräde 22564.—Yield of milk, 187 lbs. 8 oz.; yield of butter, 14 lbs. $2\frac{1}{2}$ oz.; test made from Feb. 21 to 27, 1888; age, 5 years and 9 days; weight, 910 lbs.; grain fed during test, 3 lbs. oats, 12 lbs. corn meal, $3\frac{3}{4}$ lbs. middlings and $2\frac{1}{4}$ lbs. oil meal, daily; property of Mrs. A. N. Martin, Summit, N. J.

Gräde 22564.....	{ Catono 3761.....	{ Cato (P. S. 178 J. H. B.).....	{ Jersey Boy
			{ (P. S. 92 J. H. B.)
		{ Ona 7840.....	{ Belle Grisette
			{ (F. S. 567 J. H. B.)
			{ Khedive
			{ (P. S. 103 J. H. B.)
			{ Ecornee
			{ (F. S. 846 J. H. B.)
{ Usilda's Creamlet 8817.....	{ Mattabesett 3359.....	{ Usilda 2d 6157.....	{ Colt Jr. 825.
			{ Lady Mel 429.
			{ Rex 1330.
			{ Usilda 832.

Mildred of M. 15548.—Yield of milk, 264 lbs.; yield of butter, 14 lbs. $2\frac{1}{2}$ oz.; test made from May 19 to 25, 1886; age, 4 years and 8 months; estimated weight of cow, 900 lbs.; grain fed during test, 30 lbs., daily, of mixed corn-hearts, oil meal, oats and middlings; property of Miller & Sibley, Franklin, Pa.

Mildred of M. 15548.....	{ Rabbi 2496.....	{ Jachin 1220.....	{ Yankee 1003.
			{ Jennie 3d 2244.
			{ Mack 722.
	{ Pauline 3d 8296.....	{ Creamery 3358.....	{ Plenty 950.
			{ Lord Lisgar 1066.....
			{ Victor Hugo 197.
			{ Pauline 494.
			{ On I. of J.
			{ Hebe 489, imp.

Aggie of St. Lambert 37085.—Yield of milk, 134 lbs. 4 oz.; yield of butter, 14 lbs. $2\frac{1}{2}$ oz.; test made from May 28 to June 4, 1888; age, 3 years and 1 month; estimated weight, 800 lbs.; grain fed daily, 20 qts. of a mixture of corn, oats, middlings and oil meal; property of P. J. Cogswell, Rochester, N. Y.

Aggie of St. Lambert 37085.....	{ Rubano 8806.....	{ Sir George of St. Lambert 6036.....	{ Stoke Pogis 3d 2238.
			{ Pride of Windsor 483.
	{ Polly of St. Lambert 28665.....	{ Nina of St. Lambert 12963.....	{ Stoke Pogis 3d 2238.
			{ Jessamine of St. Lambert 5125.
		{ Hugo of St. Lambert 13458.....	{ Lord Monck 304.
			{ Rosalind 1317.
		{ Rosanne 1330.....	{ Victor Hugo 197.
			{ Beauty 1319.

Faith of Cloverdale 29277.—Yield of milk, 128 lbs. 5½ oz.; yield of butter, 14 lbs. 2 oz.; test made from March 15 to 21, 1887; age, 2 years and 5 months; grain fed during test, 6 qts. corn meal, 6 qts. oat meal, 2 qts. oil meal, daily; property of Archer N. Martin, Summit, N. J.

Faith of Cloverdale 29277.....	{ Duke of Cloverdale 6994.....	{ Goldemar 3174.....	{ Sir Walter Raleigh 1507.	
			{ Cornelia 2974.	
	{ Princess 2d 8046.....		{ Khedive	
			{ (P. S. 103 J. H. B.)	
			{ Princess	
			{ (F. S. 452 J. H. B.)	
	{ Flo 3d 14754.....	{ Goldemar 3174.....	{ Sir Walter Raleigh 1507.	
			{ Cornelia 2974.	
		{ Flo 8045, imp.		

Quadruple Pogis 32359.—Yield of milk, 140 lbs. 13 oz.; yield of butter, 14 lbs. 1½ oz.; test made from Feb. 8 to 15, 1888; age, 2 years and 11 months; estimated weight, 925 lbs.; grain fed daily, 14 lbs. mixed ground corn, oats and ship stuff and 2 lbs. oil meal; property of H. G. Westlake, Hillsdale, N. Y.

Quadruple Pogis 32359.....	{ Marjoram's Riotor 5991.....	{ Rioter Vulean 5380....	{ Stoke Pogis 1259, imp.
			{ Violet 3d 3240.
	{ Lily of Riverside 19599.....	{ Marjoram 2d 12805.....	{ Stoke Pogis 1259, imp.
			{ Marjoram 3239, imp.
		{ Blossom's Tennessee 6060.....	{ Top-Sawyer 1404.
			{ Blossom of the Grange 6958.
		{ Lily of Oxford 12820....	{ Midas of Oxford 5986.
			{ Lily of St. Lambert 2d 12809.

Sweet Leona B. 21934.—Yield of milk, 248 lbs. 8 oz.; yield of butter, 14 lbs. 1½ oz.; test made from Aug. 1 to 7, 1887; age, almost 4 years; estimated weight, 800 lbs.; grain fed during test, 30 lbs., daily, of mixed corn-hearts, oil meal, oats and middlings; property of Miller & Sibley, Franklin, Pa.

Sweet Leona B. 21934.....	{ Stoke Pogis 5th 5987....	{ Stoke Pogis 1259, imp.	
			{ Marjoram 3239, imp.
	{ Lady of Oakland 11101.....	{ Thorndale 2582.....	{ Balsora 2357.
			{ Katinka 5264.
		{ Malvina of Staatsburgh 5238.	{ Yankee 1003.
			{ Minnie 3d 2334.

Pearl of Oakwood 37722.—Yield of milk, 186 lbs. 10 oz.; yield of butter, 14 lbs. 1 oz.; test made from Aug. 15 to 22, 1888; age, 2 years and 6 months; weight, 762 lbs.; grain fed daily, 4 lbs. bran, 5 lbs. corn meal and 6 lbs. oat meal; property of Jacob L. Thomas, Knoxville, Tenn.

Pearl of Oakwood 37722.....	{ Oonan's Signal 11586.....	{ Toltce 6831.....	{ Tormentor 3533.
			{ Oonan 1485.
	{ Majestic 24757.....	{ Enone 8614.....	{ Signal 1170.
			{ Zina 2d 3082.
		{ Happy Cicero 10601 ..	{ Cicero 7657.
			{ La Dame (F. S. 2301 J. H. B.)
		{ Rescued 24353.....	{ Khedive (P. S. 103 J. H. B.)
			{ Saga (F. S. 2784 J. H. B.)

Venna's Zeka 26670.—Yield of milk, 146 lbs. 8 oz.; yield of butter, 14 lbs. $\frac{1}{2}$ oz.; test made from Feb. 10 to 17, 1888; age, 4 years and 3 months; estimated weight, 700 lbs.; grain fed daily, about 3 gallons of ground feed, corn and oats; property of Webster & Morrow & Son, Nashville, Tenn.

Venna's Zeka 26670...	{ Count Coomaszie 7542.	{ Nigel Bruce 4124.....	{ Hadfield's Nelson 2223.
		{ Daisy Queen 9619.....	{ Pattie Mc. 4th 4755.
	{ Venna 9525.....	{ Tormentor 3533.....	{ Khedive (P. S. 103 J. H. B.)
		{ Varinka 3838.....	{ On I. of J.
			{ Khedive (P. S. 103 J. H. B.)
			{ Angela (F. S. 1607 J. H. B.)
			{ Mandarin 1041.
			{ Bathsheba 2556.

Mab of Deerfoot 3d 15345.—Yield of milk, 231 lbs. 3 oz.; yield of butter, 14 lbs. $\frac{1}{2}$ oz.; test made April 9 to 15, 1887; age, 6 years and 5 months; fed during test, 6 lbs. wheat bran and middlings, $2\frac{3}{4}$ lbs. corn and oat meal and $1\frac{1}{4}$ lbs. oil meal, twice daily; property of N. N. Palmer, Brodhead, Wis.

Mab of Deerfoot 3d 15345.....	{ Deerfoot Boy 1926.....	{ Albion 490.....	{ On I. of J.
		{ Daisy of Deerfoot 3182.	{ Bonfanti 388.
	{ Mab of Deerfoot 3589...	{ Jersey Boy 272.....	{ Czar 273.
		{ Milly 3588.....	{ Fanny 675.
			{ Czar 273.
			{ Fanny 675.
			{ Abe Lincoln 268.
			{ Duchess 685.

Scepter's Beauty 23234.—Yield of milk, 107 lbs. 14 oz.; yield of butter, 14 lbs. $\frac{1}{2}$ oz.; test made from Nov. 15 to 22, 1888; age, 5 years and 6 months; estimated weight, 700 lbs.; grain fed daily, 16 qts. corn and cob meal; property of Maury Jersey Farm, Columbia, Tenn.

Scepter's Beauty 23234	{ Scepter 5417.....	{ Tamerlane 4287.....	{ Oxoli 1922.
		{ Leslie 9179.....	{ Ianthe 4562.
	{ Pierrot's Myrtle 10135...		{ Oxoli 1922.
			{ Ariella 9178.
		{ Pierrot 7th 1967.....	{ Pierrot 636.
			{ Pet 811.
		{ Pride of Mashamoquet	{ Landseer 331.
		Farm 6469.....	{ Myrtle 2d 211.

Snap's Dainty 18958.—Yield of milk, 203 lbs.; yield of butter, 14 lbs.; test made from Aug. 19 to 26, 1886; age, 5 years and 5 months; grain fed daily, 4 qts. corn meal, 8 qts. ground oats, 5 qts. shorts and 1 qt. oil meal; property of W. H. Haley, North Wilmington, Mass.

Snap's Dainty 18958..	{ Snap (F. S. 301 J. H. B.)		
	{ Dainty.....	{ Duke of Wellington.....	{ Sambo
		{ (P. S. 81 J. H. B.)	{ (F. S. 163 J. H. B.)
	{ (P. S. 104 J. H. B.)	{ Scotch Grey	{ Victoria
		{ (F. S. 517 J. H. B.)	{ (F. S. 431 J. H. B.)

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Sibyl's Fancy 25942.....	17 lbs.

Garibaldi (P. S. 242 J. H. B.)—Sire of

Lady Antoinette 24391.....	21 lbs. 6 oz.
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Garibaldi H. 7106, imp.—Sire of

Lady Livingston 33374.....	15 lbs. 2 oz.
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Gen. James A. Garfield 14874—Troy 5404, Mollie Garfield 12172—Sire of

Kitty Livingston 34303.....	15 lbs. 2 oz.
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***Gilderoy 2107—Magnetic 1428, Jeanne Le Bas 2476—Sire of**

Gilderoy's Enid 32924.....	14 lbs. 4 oz.
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***Gold Basis 4038—Gilderoy 2107, Regina 2d 2475—Sire of**

Nonsuch of Linwood 29028.....	14 lbs. 14½ oz.
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Gold Finder 2225—Humboldt River 2137, Lady Guilford 5066—Sire of

Golden Trudie 34535.....	14 lbs. 9 oz.
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Gold Mine 7272—Royalist 2906, Dorian 6465—Sire of

Etta M. 2d 30820.....	14 lbs. 14 oz.
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Golden Ray 10669—Rayon d'Or 7516, Faustine 10354—Sire of

Riotaletta 2d 34495.....	15 lbs. 15½ oz.
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***Grey King (P. S. 169 J. H. B.)—Sire of**

Jersey Lily 14044.....	15 lbs.
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Halo 10517—Footstep 5163, Hilda D. 6683—Sire of

Edna of Verna 34537.....	20 lbs. 2½ oz.
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Hard Trials 5050—Gilderoy 2107, Eugenie 498—Sire of

Lady's Blossom 18491.....	20 lbs. 15¾ oz.
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***Hero (P. S. 90 J. H. B.)—Sire of**

Cocotte 11958.....	16 lbs. 8½ oz.
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Iowa Prince 2727—Sweepstakes Duke 1905, Maid of the Mist 2546—Sire of

Prince's Nellie 23719.....	14 lbs. 6 oz.
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***Jason Jr. 3270—Jason 1550, Lady Reynolds 3808—Sire of**

Rioter Rhea 10092.....	19 lbs. 3½ oz.
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Jersey Express 5771—Sire, Brisk (F. S. 261 J. H. B.)—Sire of

Jersey Jane 38308.....	16 lbs. 4½ oz.
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Justice 9949—Royalist 3d 4500, Queen Tamora 9563—Sire of

Mary Justice 37449.....	14 lbs. 9½ oz.
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Kenilworth 8091—Tressilian 3784, Madge Wildfire 11857—Sire of

Fair Dairy-maid 29839.....	14 lbs. 8 oz.
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***Khedive (P. S. 103 J. H. B.)—Leo (F. S. 198 J. H. B.), Coomassie (F. S. 1442 J. H. B.)—Sire of**

Khedive's Fancy 18180.....	15 lbs. 3 oz.
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***King (P. S. 238 J. H. B.)—Sire of**

Brown Coomassie 20322.....	14 lbs. 8 oz.
Granny's Gem 30406.....	21 lbs. 1¾ oz.
Khelula 17970.....	21 lbs. 8 oz.
King's Princess 30948.....	24 lbs. 5 oz.

- King 2d 11570—King (P. S. 238 J. H. B.), Fill Pail 24341—Sire of
King's Antoinette 40456..... 15 lbs. 1 oz.
- King Koffee 5522—Sir George (P. S. 221 J. H. B.), Coomassie 11874—Sire of
Koffee's Grisette 30433..... 15 lbs. 7 oz.
Koffee's Lily 25515..... 15 lbs. 3½ oz.
- King of Ashantee 6677—Fairfield 4733, Coomassie 11874—Sire of
Ashantee's Lady 35951..... 16 lbs.
- King Philip of Mt. Hope 2399—Sam King 2376, Norma 3109—Sire of
Christel 6565..... 19 lbs. 5 oz.
- Kitty's Royal Rex 6176—Rex 1330, Kitty Cooke 8547—Sire of
Pansy Blossom 23413..... 14 lbs. 13½ oz.
- *Knight of St. Louis 3680—Bobby (P. S. 208 J. H. B.), Lily of Les Niemes
7465—Sire of
Queen of Beauty 17109..... 23 lbs. 14 oz.
- Koffee of Ridgeside 11659—King Koffee 5522, Attractive Maid 16925—
Sire of
Lady Phillis 2d 35629..... 18 lbs. 8 oz.
- *Le Brocq's Prize 3350, imp.—Sire of
Le Brocq's Pansy Rex 23789..... 18 lbs. 6 oz.
Petra 19267..... 16 lbs. 6 oz.
- Lemon Peel of Francheville (P. S. 439 J. H. B.)—Sire of
Milkgood 27828..... 14 lbs. 7½ oz.
- *Lenape 2732—Vermont 893, Magna 2238—Sire of
Muriel 5th 19017..... 16 lbs. 12½ oz.
- Lena's Lenox 6059—Lenox 1593, Lena 1976—Sire of
Proctor's Pansy 25688..... 15 lbs. 13 oz.
- Lord Darlington 7285—Duke of Darlington 2460, Marjoram 3239—Sire of
Saugus Lass 30542..... 14 lbs. 9 oz.
- *Lord Harry 3445—Top-Sawyer 1404, Duchess of Bloomfield 3653—Sire of
Clover Bud 4th 18992..... 16 lbs. 14 oz.
Kathletta 19567..... 22 lbs. 12½ oz.
Martha Lafayette 17158..... 17 lbs. 6 oz.
Oonan 2d 19569..... 18 lbs. 4¼ oz.
- Lord of Mountainside 7111—Carlo 5559, Coomassie 2d 11969—Sire of
Rioter Carlotta 29667..... 21 lbs. 2½ oz.
- *Lucullus 2695—Sweepstakes Duke 1905, Lucy 4577—Sire of
Cora of Hillside 25253..... 15 lbs. 7 oz.
- Mahkeenac 3290—Cinnabar 1739, Europa 176—Sire of
Angetta 19404..... 15 lbs. 4 oz.
Frolic of Chestnutwood 19405..... 16 lbs.
Frolic's Pride 31667..... 17 lbs.
Young Anne Lee 31668..... 14 lbs. 7 oz.
- Man of Ipswich 1510—Agawam 597, Maid of Ipswich 1346—Sire of
Jennette Darling 10702..... 16 lbs. 2 oz.
- Marjoram's Rioter 5991—Rioter Vulcan 5380, Marjoram 2d 12805—Sire of
Quadruple Pogis 32359..... 14 lbs. 1½ oz.

Mercury Boy 5721 —Compeer 2367, Little Gus 8776—Sire of Waiter Girl 2d 29265.....	18 lbs. 14½ oz.
Mercutio 4591 —St. Martin 1482, Negress 7651—Sire of La Pucelle 16829.....	15 lbs. 8 oz.
Millennium 4791 —Butter Boy 3243, Millicent 2d 7229—Sire of Redacta 26954.....	14 lbs. 5 oz.
Monmouth Cyrene 6835 —Gaspard of Meadow Brook 3525, Cyrene 3d 1239— Sire of Lucy McClung 20368.....	14 lbs. 3 oz.
*Nero 7266 —Carlo (P. S. 180 J. H. B.), Bossy (P. S. 215 J. H. B.)—Sire of Dark and Fair 24468..... Royal Queen 24428.....	16 lbs. 9 oz. 22 lbs. 6 oz.
Norman B. 7001 —Duke of Mansfield 2277, Peggy Daw 12105—Sire of Edith Campbell 23011.....	21 lbs. 4½ oz.
Oonan's Signal 11586 —Toltec 6831, Enone 8614—Sire of Pearl of Oakwood 37722.....	14 lbs. 1 oz.
Oxford Rioter 5992 —Midas of Oxford 5986, La Belle Petite 5472—Sire of Rioter's Violet 33774.....	14 lbs. 3 oz.
*Pedro 3187 —Domino of Darlington 2459, Eurotas 2454—Sire of Golightly 25597.....	18 lbs. 2 oz.
Perrot (P. S. 342 J. H. B.) —Sire of Eastwood Clearwater 30445.....	27 lbs.
*Pilot (P. S. 183 J. H. B.) —Sire of Cabinet 22662..... Pilot's Rose 17958.....	15 lbs. 10 oz. 18 lbs. 3¾ oz.
Polonius 2513 —Sarpedon 930, Leda 799—Sire of May Evening 15038.....	17 lbs. 13 oz.
Prince George 11571 —Sir George 7656, St. Clémentaise 18163—Sire of Silicon 25577.....	18 lbs. 13 oz.
Prince Harry 5176 —Lord Harry 3445, Coonie 7817—Sire of Cricket's Minnie 26270.....	15 lbs. 3½ oz.
Prince of Melrose 4819 —Stoke Pogis 3d 2238, Princess of St. Lambert 5484 —Sire of Bee Princess 40345.....	14 lbs. 2¾ oz.
Prince of Warren 1512 —Southampton 117, Golddrop 222—Sire of Lady Monmouth 15173.....	15 lbs. 3 oz.
Rabbi 2496 —Jachin 1220, Creamery 3358—Sire of Mildred of M. 15548.....	14 lbs. 2½ oz.
Rachel's Duke 7022 —Duke of Darlington 2460, Rachel Ray 1754—Sire of Real Queen 29198.....	18 lbs. 1 oz.
*Ramapo 4679 —Miletus 3186, Eurotas 2454—Sire of Butterstamp Lass 19517..... Cornwall Maid 19024..... Lady Ramaposa 26232..... Maud's Sultana 19518.....	16 lbs. 11 oz. 29 lbs. 12 oz. 17 lbs. 5½ oz. 16 lbs. 4 oz.

- *Rambler of St. Lambert 5285**—Stoke Pogis 3d 2238, Bessy of St. Lambert 5482—Sire of
Oaklands Lilly 14881..... 15 lbs. 4 oz.
- Rioter Hugo Pogis 13457**—Orloff's Stoke Pogis 11157, Niobe of St. Lambert 12969—Sire of
Rioter Alpha 3d 34073..... 17 lbs. 1½ oz.
- *Rocco 4517**—Diamond Earl 3116, Fanti 1937—Sire of
Cora of Arcadia 16151..... 15 lbs.
- *Rough (P. S. 239 J. H. B.)**—Cato (P. S. 178 J. H. B.), Dovey (P. S. 254 J. H. B.)—Sire of
Perry Farm Golden Cloud 22872..... 18 lbs. 9 oz.
- Royalty 7210**—Pedro 3187, Royal Princess 2370—Sire of
Pedroletta 26597..... 16 lbs. 6¼ oz.
- Rubano 8806**—Sir George of St. Lambert 6036, Nina of St. Lambert 12963—Sire of
Aggie of St. Lambert 37085..... 14 lbs. 2¼ oz.
Miss May of St. Lambert 37084..... 15 lbs. 14 oz.
- St. John (P. S. 316 J. H. B.)**—Sire of
St. John's Daisy 28388..... 15 lbs. 4 oz.
- Scepter 5417**—Tamerlane 4287, Leslie 9179—Sire of
Scepter's Beauty 23234..... 14 lbs. ½ oz.
- Secretary 4074**—Brown Prince 2583, Elsie Dinsmore 5834—Sire of
Daffy Wilcox 2d 18317..... 15 lbs. 5 oz.
- Seneca Chief 4098**—Lord Shaftesbury 2499, May Blossom 5657—Sire of
Daisy Stillson 28174..... 15 lbs. 3 oz.
Giulietta Cooke 32193..... 21 lbs. 13¾ oz.
Olco 28475..... 18 lbs. 1 oz.
- *Signalda 4027**—Signal 1170, Alda 3873—Sire of
Lilly Signalda 23227..... 17 lbs. 10 oz.
- Signal Jr. 7166**—Signal 1170, Alda 3873—Sire of
Edy Signal 19430..... 16 lbs. 8 oz.
- *Silver Mine 1658**—Silverlocks Jr. 699, Minerva 1529—Sire of
Siloam 17623..... 18 lbs. 9½ oz.
- Sir Joseph Peck 4978**—Dainty Boy 2955, Mel 6th 2041—Sire of
Laundress 2d 24649..... 14 lbs. 9 oz.
- Snap (F. S. 301 J. H. B.)**—Sire of
Snap's Dainty 18958..... 14 lbs.
- Snedens 4882**—Ash Bud 3317, Edie 2001—Sire of
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- Solid South 4711**—Butter Boy 3243, Lulu Wing 6292—Sire of
Serita 15520..... 17 lbs. 2 oz.
- Southern Prince 10760**—Forget-me-not 6291, Oxford Kate 13646—Sire of
Southern Daisy 38292..... 14 lbs. 11 oz.

- *Stoke Pogis 2d 2414**—Stoke Pogis 1259, Marjoram 3239—Sire of
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- *Stoke Pogis 3d 2238**—Stoke Pogis 1259, Marjoram 3239—Sire of
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- *Stoke Pogis 5th 5987**—Stoke Pogis 1259, Marjoram 3239—Sire of
Lady Mary of Prospect 19768..... 19 lbs. 15½ oz.
Rioter Zoe 19769..... 14 lbs. 12 oz.
Sweet Leona B. 21934..... 14 lbs. 1½ oz.
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St. Lambert's Violet 25278..... 16 lbs. 12 oz.
- Sultan of New York 6186**—Azimuth 1412, Asia 2161—Sire of
Lady of Dryden 27642..... 16 lbs. 3 oz.
- Sultan of St. Saviour's 5328**—Cœur de Lion (P. S. 140 J. H. B.), Sultane 2d
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- *The Hub 1009**—Motley 515, Bessie 139—Sire of
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- *Toltec 6831**—Tormentor 3533, Oonan 1485—Sire of
Landseer's Fancy 2d 43184..... 15 lbs. ½ oz.
- Tom McGreevy 1692**—Son of Rosa 663, Princess 1154—Sire of
Le Gros' Lily of the Valley 2d 13386..... 19 lbs. 10¾ oz.
- *Tormentor 3533**—Khedive (P. S. 103 J. H. B.), Angela (F. S. 1607 J. H. B.)
—Sire of
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- Tormentor 2d 7124**—Tormentor 3533, Su Lu 4705—Sire of
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- Uproar 4609**—Duke of Darlington 2460, Euphrates 9778—Sire of
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- Uproar 4th 5954**—Uproar 4609, Ælodia 6101—Sire of
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 Ulricalla 23225..... 18 lbs. 14 oz.
- Westchester 1266**—Inachus 928, Clytemnestra 2455—Sire of
 Chansonnette 5695..... 16 lbs. 4 oz.
- West Wind 4289**—Prince of the Herd 3329, Rosalind of Glen Dale 7382—
 Sire of
 Maud Pogis 24240..... 14 lbs. 12 $\frac{3}{4}$ oz.
- Yakout 6842**—Ori 4286, Zithey 9184—Sire of
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- Belle of Bayside 1457**—Young Pilgrim 302, Belle Bronx 989—Dam of
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Belle of Maple Grove 11334—Asteroid 858, Madam Juny 11333—Dam of Lady Alexis 23916.....	16 lbs. 8 oz.
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Bonnie Grisette 2d 19526—Duke of Darlington 2460, Bonnie (Grisette) 6979 —Dam of Koffee's Grisette 30433.....	15 lbs. 7 oz.
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- *Cora of Lebanon 11637—Lucullus 2695, Gazelle 2d 6032—Dam of
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- Countess (F. S. 1302 J. H. B.)—Dam of
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- Cricket of Belle Vue 9570—Lord Lawrence 1414, Beauty of Belle Vue
 6953—Dam of
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- Crocus of St. Lambert 8351—Stoke Pogis 3d 2238, Lolly of St. Lambert
 5480—Dam of
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 Daffy Wilcox 2d 18317..... 15 lbs. 5 oz.
- Dainty (P. S. 404 J. H. B.)—Dam of
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- Donna Fay 6294—Bluetooth 1821, Trudie 2d 4084—Dam of
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- Dorine 7456—Palmerston 2463, Jaqueline 2164—Dam of
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- *Duchess of Argyle 2d 7568—Star of Bethlehem 1693, Duchess of Argyle
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- Dye's Pansy Buttercup 14914—Cussewago 6636, Glenmore Belle 4801—
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 Grace G. Parks 29263..... 19 lbs. 3 oz.
- Etta M. 15901—Rodney 1941, Young Brunette 5438—Dam of
 Etta M. 2d 30820..... 14 lbs. 14 oz.
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 Nora Stoke Pogis 34687..... 16 lbs. 1 oz.
- Fair Daisy (F. S. 2591 J. H. B.)—Dam of
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- Fair Maid of Perth 13705**—Le Brocq's Prize 3350, Evri 5282—Dam of
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- Fill Pail 2d 24388**—King (P. S. 238 J. H. B.), Fill Pail 24341—Dam of
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- Flo 3d 14754**—Goldemar 3174, Flo 8045—Dam of
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- Floss of Lawnfield 16085**—Napoleon 2d 527, Judy 691—Dam of
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- Gigia 4447**—Lawrence 61, Zuleika 1900—Dam of
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- Gilt Edge Rexea 32942**—Champion of Riverside 5787, Alpheia Rexea 12079
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- Glenn Forest Queen 4809, imp.**—Dam of
Forest Queen 12229..... 16 lbs. 15 oz.
- Golden Zoe 3975**—Golden Ear 1025, Zoe Mou 2704—Dam of
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- Hennie 3335**—Careless Boy 1297, Haidee 971—Dam of
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- Income 19472**—Auroraborëllis 2408, Niva 7523—Dam of
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- Jenny B. 4190**—Young Major 214, Tulip 1793—Dam of
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- *Jersey Lily 14044**—Sire, Grey King (P. S. 169 J. H. B.)—Dam of
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- Juno Grey 16722, imp.**—Dam of
Cicero's Juno 16726..... 17 lbs. 2 oz.
- Juno W. 8553**—Major Domo 2161, Corinne 707—Dam of
Vivian 15813..... 16 lbs.
- Kate Gordon 8387**—Pertinax 1965, Normanda 3914—Dam of
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- Khedive's Rosebud 18173 (F. S. 3308 J. H. B.)**—Dam of
Carlo's Rosebud 18223..... 15 lbs. 8 oz.
- Lady Anerly 10595**—Jersey Golddust 2134, Anne Page 2690—Dam of
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Young Anne Lee 31668..... 14 lbs. 7 oz.
- Lady Antoinette 24391**—Garibaldi (P. S. 242 J. H. B.), Castaledes (F. S. 2876 J. H. B.)—Dam of
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- Lady Bountiful 17946 (F. S. 3348 J. H. B.)**—Dam of
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- *Lady Cornwall 7179, imp.**—Dam of
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- Lady Delphine 28460**—Baldwin's Frolic 13840, Lady Sarah 4931—Dam of
Helen Stoke Pogis 31947..... 17 lbs. 8 oz.
- Lady Dove 4418**—Clifton Dasher 1119, Nellie 4th 1941—Dam of
Lady Rareripe 23081..... 16 lbs. 1 oz.
- Lady Ellen 11660**—Gilderoy 2107, Gold Lace 10726—Dam of
Lady's Blossom 18491..... 20 lbs. 15¼ oz.
- *Lady Golddust 7718**—Jersey Golddust 2134, Bluebird 599—Dam of
Lady Golddust 2d 19861..... 23 lbs. 4 oz.
- Lady Horton 2d 15499**—Vertumnus (P. S. 161 J. H. B.), Lady Horton (F. S. 2170 J. H. B.)—Dam of
Vera of Briarcliff 28687..... 15 lbs. 1 oz.
- Lady Livingston 33374**—Garibaldi H. 7106, Rainbow 2d 13962—Dam of
Kitty Livingston 34903..... 15 lbs. 2 oz.
- Lady Mary Linden 12800**—Butter Boy 3243, Lady Mary 1148—Dam of
Lady Mary of Prospect 19768..... 19 lbs. 15½ oz.
- Lady of Belle Vue 7705**—Lord Lawrence 1414, Lady Burlington 1713—Dam of
Nonsuch of Linwood 29038..... 14 lbs. 14½ oz.
- Lady of Oakland 11101**—Thorndale 2582, Malvina of Staatsburgh 5238—
Dam of
Sweet Leona B. 21934..... 14 lbs. 1½ oz.
- Lady of Venice 13342**—Lord Charlton 5463, Charlton Caroline 11724—Dam of
Lady of Dryden 27642..... 15 lbs. 3 oz.
- Lady Phillis 18240**—Forget-me-not 6291, Phillis 2d 18198—Dam of
Lady Phillis 2d 35629..... 18 lbs. 8 oz.
- Lady Sarah 4931**—Pride of Guilford 2138, Lita 4930—Dam of
Lady Delphine 28460..... 14 lbs. 4 oz.
- *Landseer's Fancy 2873**—Landseer 331, Young Fancy 97—Dam of
Landseer's Fancy 2d 43184..... 15 lbs. ½ oz.
- La Pucelle 16829**—Mercutio 4591, Nannette of Allerton 8515—Dam of
Proctor's Pansy 25688..... 15 lbs. 13 oz.

Laundress 13867 —Brown Duke 2190, Lady Caroline 2d 7628—Dam of Laundress 2d 24649.....	14 lbs. 9 oz.
Le Gros' Lily of the Valley 11537 —Vertumnus (P. S. 161 J. H. B.), Lydie (F. S. 619 J. H. B.)—Dam of Le Gros' Lily of the Valley 2d 13386.....	19 lbs. 10¼ oz.
Le Gros' Lily of the Valley 2d 13386 —Tom McGreevy 1692, Le Gros' Lily of the Valley 11537—Dam of Koffee's Lily 25515.....	15 lbs. 3½ oz.
Lilley Rex 9852 —Prince of M. 2811, Lilley Russ 2d 9514—Dam of Albert's Lilley 19489.....	15 lbs. 2 oz.
Lilly Signalda 23227 —Signalda 4027, Belle of Tennessee 9573—Dam of Signal Fancy 30812.....	14 lbs. 8¾ oz.
Lily (P. S. 166 J. H. B.) —Dam of Cetewayo's Lily 18950.....	17 lbs.
Lily 2d (P. S. 147 J. H. B.) —Hero (F. S. 220 J. H. B.), Lily (P. S. 9 J. H. B.) —Dam of Damask Rose 22065.....	16 lbs. 3¼ oz.
Lily of Oxford 12820 —Midas of Oxford 5986, Lily of St. Lambert 2d 12809— Dam of Lily of Riverside 19599.....	14 lbs. 9 oz.
Lily of Riverside 19599 —Blossom's Tennessee 6060, Lily of Oxford 12820— Dam of Quadruple Pogis 32359.....	14 lbs. 1½ oz.
*Lily of St. Lambert 5120 —Laval 506, Pride of Windsor 483—Dam of St. Lambert's Violet 25278.....	16 lbs. 12 oz.
Lydia Deming 4399 —Ishmael Hurd 1548, S. Hart's Belle 4396—Dam of Louisa Deming 23469.....	14 lbs. 15 oz.
Mab of Deerfoot 3589 —Jersey Boy 272, Milly 3588—Dam of Mab of Deerfoot 3d 15345.....	14 lbs. ½ oz.
Maid of Fernwood 10939 —Balboa 1244, Prize Maid 3835—Dam of Maid of Fernwood 2d 29010.....	17 lbs. 11 oz.
Majestic 24757 —Happy Cicero 10601, Rescued 24353—Dam of Pearl of Oakwood 37722.....	14 lbs. 1 oz.
Mary Garnet 10371 —Milkboy 2844, Garnet of Bourbon 6345—Dam of Martha Lafayette 17158.....	17 lbs. 6 oz.
*Matilda 2d 5471 —Stoke Pogis 1259, Matilda 3238—Dam of Minnie of Oxford 12806.....	17 lbs.
*May Day of St. Lambert 5109 —Lord Lisgar 1066, Ierne 1373—Dam of May Day Stoke Pogis 28353.....	17 lbs. 7 oz.
May Day Stoke Pogis 28353 —Stoke Pogis 3d 2238, May Day of St. Lambert 5109—Dam of Miss May of St. Lambert 37084.....	15 lbs. 14 oz.
May of Lakeside 10826 —Micawber 4796, Dove 3d 10823—Dam of May Dee 18058.....	15 lbs. 10 oz.
Merlin's Violet 16430 —Merlin 3684, Violet of Windyside 8538—Dam of Rioter's Violet 33774.....	14 lbs. 3 oz.
Metella 3905 —Mogul 532, Clio 2d 1248—Dam of Coma 29330.....	15 lbs. 2¼ oz.

- Mildrida 6743**—Hornbeam 2123, Memento 1913—Dam of
 Plumida 23621..... 15 lbs. $\frac{1}{2}$ oz.
- Minette of St. Lambert 9774**—Stoke Pogis 3d 2238, May Day of St. Lambert 5109—Dam of
 Oaklands Lilly 14881..... 15 lbs. 4 oz.
- Minnie Stevens 13059**—Dick Swiveller 159, Daisy 692—Dam of
 Duchess of Darlington 13830..... 14 lbs. 11 oz.
- *Miss Beauty 4053**—Apis 1206, Miss Blossom 1986—Dam of
 Mrs. Knickerbocker 19367..... 16 lbs. $8\frac{1}{4}$ oz.
- Miss Bianca 12517**—Faust 503, Miss Millie 12264—Dam of
 Comanca 19389..... 16 lbs. 3 oz.
- *Miss Blossom 1986**—Cœur de Lion 318, Dotty Dimple 377—Dam of
 Miss Belle 5083..... 23 lbs. 9 oz.
- *Monmouth Duchess 4th 7129**—Optimus 1607, Monmouth Duchess 3895—
 Dam of
 Lady Monmouth 15173..... 15 lbs. 3 oz.
- Moragina 26344**—Kapper's Victor 12340, Belle Morgan 26219—Dam of
 Lorita 33750..... 15 lbs. $6\frac{1}{4}$ oz.
- Mrs. Bannister 23803**—Bingo 1811, Dulcinea 4052—Dam of
 Onolee 23804..... 16 lbs. 4 oz.
- Mrs. Knickerbocker 19367**—Bingo 1811, Miss Beauty 4053—Dam of
 Lady Bingo 24160..... 15 lbs. 4 oz.
- Muriel 3904**—Mogul 532, Niobe 3d 506—Dam of
 Muriel 5th 19017..... 16 lbs. $12\frac{1}{4}$ oz.
- Myrrha 11299**—Top-Sawyer 1404, Marietta 1813—Dam of
 Southern Daisy 38292..... 14 lbs. 11 oz.
- Nannette of Allerton 8515**—Clifton Prince 1640, Brinca 4019—Dam of
 La Pucelle 16829..... 15 lbs. 8 oz.
- Neata 4748**—Rulander 1037, Fleta 3859—Dam of
 Zenitza 19190..... 17 lbs. $5\frac{1}{2}$ oz.
- Nellie Harrison 2d 23093**—Alton Prince 1994, Nellie Harrison 23092—Dam of
 Prince's Nellie 23719..... 14 lbs. 6 oz.
- Nickel 2d 23352**—Guide 3521, Nickel 1978—Dam of
 Daisy Stillson 28174..... 15 lbs. 3 oz.
- Nitella 4423**—The Squire 1298, Nimmie 968—Dam of
 Nigella 7895..... 16 lbs. 3 oz.
- Nutley Alma 13581**—Snap (F. S. 254 J. H. B.), St. Clémentaise (F. S. 412
 J. H. B.)—Dam of
 Nutley Darling 22412..... 15 lbs. $3\frac{1}{2}$ oz.
- *Onan 1485**—Rajah 340, Omoo 1247—Dam of
 Onan 2d 19569..... 18 lbs. $4\frac{1}{4}$ oz.
- Orphan Duchess 4519**—Prize Duke 942, Jersey Duchess 1266—Dam of
 Orphan Duchess 3d 21284..... 16 lbs. 3 oz.
- Palestina 4644**—Pierrot 2d 1669, Palestine 3d 1104—Dam of
 Paletta of Darlington 16255..... 27 lbs. 8 oz.

- Pansy Rex 11559**—Champion of Indiana 3075, Princess Daisy 6248—Dam of
Le Brocq's Pansy Rex 23789..... 18 lbs. 6 oz.
- Pauline 3d 8296**—Lord Lisgar 1066, Pauline 494—Dam of
Mildred of M. 15548..... 14 lbs. 2½ oz.
- Petrus 5563**—Marius 760, Pet Anna 1608—Dam of
Petra 19267..... 16 lbs. 6 oz.
- Pet's Beauty 15726**—Quack 1388, Highland Pet 2653—Dam of
May Evening 15938..... 17 lbs. 13 oz.
- Pierrot's Myrtle 10135**—Pierrot 7th 1667, Pride of Mashamoquet Farm 6469
—Dam of
Scepter's Beauty 23234..... 14 lbs. ½ oz.
- Polly of St. Lambert 28665**—Hugo of St. Lambert 13458, Rosanne 1320—
Dam of
Aggie of St. Lambert 37085..... 14 lbs. 2½ oz.
- Pride of Walnut Farm 11501**—Lord Lawrence 1414, Oma 5067—Dam of
Juliette Guion 13143..... 14 lbs. 4 oz.
- Princess Maude 7177, imp.**—Dam of
Maud's Sultana 19518..... 16 lbs. 4 oz.
- Prunella 2d 5861**—Volunteer 1253, Prunella 3607—Dam of
Siloam 17633..... 18 lbs. 9½ oz.
- Pure Mocha 9186**—Pure Gold 1487, Mocha 2d 4881—Dam of
Oléo 38475..... 18 lbs. 1 oz.
- Purity (on Island of Jersey)**—Dam of
Bisson Belle 31144..... 21 lbs. 15¼ oz.
- Question (F. S. 3132 J. H. B.)**—Dam of
Royal Queen 24428..... 22 lbs. 6 oz.
- Rainbow 6493**—Peter Norman 1238, Rachael 3d 2261—Dam of
Rainbow 2d 13962..... 21 lbs. 8 oz.
- Rainbow 2d 13962**—Doesticks 2337, Rainbow 6493—Dam of
Lady Livingston 33374..... 15 lbs. 2 oz.
- Riotaletta 29937**—Barry's Eddington 2250, Idaletta 11843—Dam of
Riotaletta 2d 34495..... 15 lbs. 15½ oz.
- Rioter Alpha 10091**—Jason Jr. 3270, Chansonnette 5695—Dam of
Rioter Alpha 3d 34073..... 17 lbs. 1½ oz.
- Romilly 14346, imp.**—Dam of
Pedroletta 26597..... 16 lbs. 6½ oz.
- Romp Lawrence 13819**—Boton 4328, Dearborn Lawrence 8824—Dam of
Sparks 41041..... 16 lbs. 4½ oz.
- Rosa Thornton 12233**—Tarquin 750, Daisy Europa 11600—Dam of
Ulricalla 22225..... 18 lbs. 14 oz.
- Rose (F. S. 1158 J. H. B.)**—Dam of
Khedive's Fancy 18180..... 15 lbs. 3 oz.
- Rose of Menard 13272**—Willet 2503, Rose of Sangamon 2d 9670—Dam of
Mary Justice 37449..... 14 lbs. 9½ oz.

- Sadie A. 25573**—Umpire 2d (P. S. 232 J. H. B.), Snowy (F. S. 910 J. H. B.)
 Dam of
 Silicon 25577..... 18 lbs. 13 oz.
- Sallie Ward 7201**—Bluetooth 1821, Lass Edith 6290—Dam of
 Serita 15520..... 17 lbs. 2 oz.
- Sassagua (F. S. 4194 J. H. B.)**—Dam of
 Brown Coomassie 20322..... 14 lbs. 8 oz.
- Schonemunk Lass 9126, imp.**—Dam of
 Butterstamp Lass 19517..... 16 lbs. 11 oz.
- Seraphine 19262**—Fresco 5236, Rose of Menard 13272—Dam of
 Seraphine 2d 37451..... 14 lbs. 6 oz.
- *Sibyl (P. S. 345 J. H. B.)**—Dam of
 Sibyl's Beauty 25941..... 18 lbs.
 Sibyl's Fancy 25942..... 17 lbs.
- *Sophie (F. S. 434 J. H. B.)**—Dam of
 Baron's Sophie 17615..... 19 lbs. 15 $\frac{7}{8}$ oz.
 Khelula 17970..... 21 lbs. 8 oz.
- Startled Fawn 7837**—Prince of Warren 1512, Princess of Warren 3745—
 Dam of
 Farmer's Pride 12284..... 15 lbs. 4 oz.
- Sultane Americaine 11374**—Duke Elie 5327, Sultane 2d 11373—Dam of
 Sultan's Sultane 32854..... 15 lbs. 1 oz.
- Tomboy 24348**—Nonpareil (P. S. 37 J. H. B.), Beauty (F. S. 1573 J. H. B.)
 —Dam of
 Milkgood 27828..... 14 lbs. 7 $\frac{1}{2}$ oz.
- *Trudie 277**—Glengary 316, Edith 2d 805—Dam of
 Golden Trudie 34535..... 14 lbs. 9 oz.
- Usilda's Creamlet 8817**—Mattabesett 3359, Usilda 2d 6157—Dam of
 Grädde 22564..... 14 lbs. 2 $\frac{1}{2}$ oz.
- Valentine of Trinity 7460**—Sire, Duke (P. S. 76 J. H. B.)—Dam of
 Queen of Beauty 17109..... 23 lbs. 14 oz.
- Venna 9525**—Tormmentor 3533, Varinka 3838—Dam of
 Venna's Zeka 26670..... 14 lbs. $\frac{1}{2}$ oz.
- Vesper of Woodstock 6916**—Trusty of Glastonbury 1963, Flash 4653—Dam of
 Alice McClellan 25237..... 15 lbs. 2 oz.
- Violet of Briarcliff 24186**—Domino of Darlington 2459, Violet of St. Owen's
 8626—Dam of
 Viola of Briarcliff 37617..... 14 lbs. 8 oz.
- Waiter Girl 12776**—Elkornah 4401, Millie Waite 10646—Dam of
 Waiter Girl 2d 29265..... 18 lbs. 14 $\frac{1}{2}$ oz.
- Young Bosdet's Rose 20067**—Lord Beaconsfield (P. S. 220 J. H. B.), Bos-
 det's Rose 2d 17214—Dam of
 Saugus Lass 30542..... 14 lbs. 9 oz.
- Zingaratta 17016, imp.**—Dam of
 Lionette 18038..... 17 lbs. 1 oz.



DIFFERENCES
IN
DAIRY PRODUCTS.

BY
HENRY E. ALVORD.

PUBLISHED BY THE CLUB BY PERMISSION OF THE AUTHOR.



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Milk is a fluid, and has been so regarded from time immemorial. It has been bought and sold by liquid measure. And in referring to the use of milk it is ordinarily spoken of as a fluid. We say commonly that we drink milk, and rarely speak of eating it. Yet milk is food rather than drink. It is the perfect food provided by Nature for the young of the most important grand division of the animal kingdom. And we know it is largely consumed as food by human beings of all ages. It is, then, as a food, that milk, and chiefly the milk of the cow, is so conspicuous in commerce and in domestic economy. But our first idea of human food is a solid substance; and although some food appears in a liquid form, it is valued for the solid matter it contains. Milk is no exception. It is a fluid because largely composed of water; but all its other constituent parts are solids, and they are what give milk its food value. Some of these constituents, the curd or caseine, the sugar and the salts or mineral matter, are dissolved in water; other parts, the fats, are in semi-solid particles, held in suspension in the fluid, causing the opaque appearance. So milk is at once a solution and an emulsion. (By "emulsion," a word itself meaning milk-like, we intend to describe a physical mixture of different substances like oil and water, which do not form a chemical union.) To thoroughly understand milk, its composition and value, it must, therefore, be examined chemically and physically.

Chemical examination reveals the fact that milk varies greatly in its composition, or, rather, in the relative quantity of its parts. By carefully evaporating the water we secure all the other parts, and these collectively are called the "total solids" of the milk. The fat may then be easily separated from the rest and its quantity determined, the remainder being what are known as "the solids not fat." These, in turn, are usually separated into caseine, sugar and salt, or ash. The notable differences in milk are in the proportion of fat

to other solids, and of the total solids to the water. The range of total solids is from below 11 per cent. to above 20 per cent. It is unusual, however, to find pure milk from a healthy cow with much less than 12 per cent. solids, and over 16 per cent. is also uncommon. The highest record found for a single cow is 23.43 per cent., and the lowest, 10.55 per cent., the former a Jersey and the latter a Holstein; and the highest for a herd, for any length of time, is 15.45 per cent., for a herd of registered Jerseys in the State of New Jersey, tested for one full year, and the lowest, 11.77 per cent., for forty-five Dutch cattle at Proskau, for over two years, as reported by Dr. Schmoeger in the "Milch Zeitung," for 1881. The range of fat is even greater, proportionally, being from 2 per cent., or even less, to 12 per cent. But 3 per cent. is as low as allowable for pure milk from a well kept cow, and anything over 6 per cent., maintained for any length of time, is very rare. The fats of milk being included in the solids and the most variable portion, we naturally find most fat with the most solids, and the lowest fat with the lowest total solids, and *vice versa*. The highest and lowest records of fat which I have seen for single cows are 12.53 and 2.70 per cent., being the same animals previously referred to as showing the extreme for total solids. Both were examined at the New York Agricultural Experiment Station. The highest and the lowest for a herd, 5.53 and 2.82 per cent., respectively, for Jerseys and Holsteins.

Physical examination, chiefly with a microscope, shows the condition in which the fat is held in the serum or fluid, and demonstrates great differences, in this particular, in the milk of different cows. The fat is found in globular form, myriads of these minute globules floating at will, in the otherwise colorless fluid, and giving to milk a physical character and quality quite distinct from its chemical quality. The main differences in these fat globules are in their average size and their uniformity of size as seen in different milks. It requires from 1,500 to 10,000 of these fat globules, placed side by side, to cover an inch in length; from 6,000 to 7,000 is a fair average. Sometimes, but not often, globules are found as large as 1-1000th of an inch in diameter, and in most milk there are those so minute as to be called granules, to distinguish them, and which are 1-25000th of an inch, or less, in diameter. Dr. Sturtevant, as the result of thousands of examinations, reported the average size of the fat globule in Jersey milk as 1-5252d of an inch, and in Ayrshire milk 1-7080th of an inch; the average size for Dutch or Holstein milk was still smaller. The larger the fat globules in any milk, the easier and quicker they separate from the fluid, and the more difficult it is

to remix the parts ; that is, the cream and the skim milk. I quote from Dr. Sturtevant on this subject of the differences in milk as regards its physical character : "The globule of the milk of the Jersey breed is larger than that of other breeds examined, and there are fewer granules ; as a result, the cream rises with considerable rapidity, and so completely as to leave a very blue skim milk, which does not readily remix with the cream. The milk of the Ayrshire breed furnishes a globule intermediate in size between the Jersey and the Dutch, and a predominant feature is the presence of numerous granules, or extremely small globules, which give a white rather than a blue appearance to the skim milk. Of the three breeds we are considering, the Dutch or American-Holstein presents the smallest globule to its milk. The globules are more uniform in their size than in the Ayrshire milk, and there are fewer granules. The cream, on account of the uniformity of size of the globules, rises completely making the skim milk appear blue, and on account of their small size, the cream can be readily mixed with the skim milk by shaking." Prof. Arnold adds, on this point : "The milk of Devons closely resembles that of Jerseys ; the milk of native cows is usually similar to that of Ayrshires, and the milk of Shorthorn cows somewhat resembles that of the Dutch, but the globules are larger and not so uniform in size and quality."

Investigations in another direction have determined what may be called either physiological or hygienic differences in milk. The character of the solids, and particularly of the fats and caseine, appears to differ as regards digestibility. It is believed by some that the caseine is more or less in a solid form, instead of all dissolved, and that this solid portion varies greatly in different milks. This variation makes one milk much more wholesome, or easier of digestion, than another, which becomes a matter of importance in the case of infants and invalids. Furthermore, milk differs in the matter of color. Some cows, as a part of their animal economy, have the power of secreting, in various parts of the body, an orange-colored pigment. This coloring matter has a special affinity for the fatty tissues, and appears in the fats of the milk. In this respect, as stated, cows differ greatly, and the matter of color seems to have no relation whatever to the quantity or other qualities of milk. It is certain that color is in no respect an indication of the quantity of fat in a milk, or of the butter that milk will produce. Erroneous views on this point have led to undue value being placed on high-colored milk and cows producing such. Repeated trials have shown that cows whose bodies and milk are destitute of this often-prized quality yield

milk richer in the quantity and quality of butter produced from it than other cows specially selected for their high development of this peculiar attribute of color.

Although the variations in milk, as described, appear more or less among cows of the same breed, and more decidedly among animals of mixed blood, it has been well established that the contrast is most marked between pure-bred cows of the several recognized dairy breeds of cattle. The differences in the milk from these breeds is so positive as to be regarded as characteristic of the breeds themselves. Thus, high medical authority pronounces the Ayrshire milk to have special hygienic properties which adapt it, above all others, to the use of infants and invalids. The predominating feature of Guernsey milk is the deep orange color which becomes imparted to the butter. The cattle of Holland and Holstein are noted for yielding enormous quantities of milk, very low in fat and other solids, but of such physical character as to make it the best of all to transport long distances and maintain an even quality for retail city delivery. And the Channel Island cattle—the Guernseys and Jerseys—give the highest per cent. of fat and total solids, together with high color. *The differences which are to be found in milk and the products of milk are, then, mainly a difference of breeds.* The study of the characteristics of the milk of different breeds of cattle has, therefore, a direct practical bearing, and becomes of interest to all consumers who are discriminating buyers, and to all producers whose business sense leads them to take every advantage of a discriminating market. Heretofore there has been difficulty in pursuing this study because of the lack of sufficient data. In the old records, of which there is a great mass, we have widely varying results from the examination of milk, cheese and butter; but they are valueless as bearing on the question of breed, because rarely, if ever, do such records give any history of the origin of the substances examined. Facts of a more complete and satisfactory character have been accumulating of late years, however, and while it is not unlikely that further data will cause some modification of existing averages, and the deductions to be made from them, we have now enough to at least make a very interesting subject for study and to lead to some well-defined conclusions.

My attention has been attracted, for two or three years, by the discussions of human foods, and the different ways of comparing them. I have been specially interested in noting the high position occupied by dairy products as economical articles of food. And this paper was suggested by, and is mainly based upon, certain tables, with their explanations, which are to be found in the proceedings of recent

meetings of the American Association for the Advancement of Science. Those relating to the differences of milk—or rather the variation in the food value of different milks, and comparing dairy products in this respect with other articles of food—were presented in the Economic Section of the Association, and the one on variations in butter was presented in the Chemical Section, and also contributed to the last meeting of the Society for Promoting Agricultural Science, and published in its proceedings for 1887. With such indorsement, we may rely upon the accuracy and value of these data, and may deduct some important facts from their consideration.

The tables to which attention is first invited were prepared two years ago, in connection with a discussion of “the food question,” to illustrate the “Relative Values of Human Foods,” upon the basis of their chemical composition. They have been amplified and rearranged within the past year, separating the long list of dairy products from the other foods, and giving a new title suited to my present use of them. (Table illustrating the Differences in Dairy Products, and comparing the latter with various other standard foods.) The figures, as presented to the American Association, remain unchanged, and they represent a very large number of authentic analyses. In relation to every article named, the composition on which its value is based is the average of all the analyses of like articles of undoubted history which could be found recorded, upon reliable authority, up to the first of July, 1887.

There are different ways of comparing human foods upon the score of economy. If one attempts to consider at once their digestibility, chemical composition and usual cost, besides other conditions which should not be ignored—nervine properties, for example—the problem becomes very complex. It is hard to define the average human stomach, and we are so much in the dark on the questions of actual digestion and assimilation of different forms of food that it is safer to drop that factor than to include it. At all events it is better to approach the subject by stages; and in this instance we consider, in combination, the chemical knowledge of foods and their market prices. The basis of comparison is all important. The necessity is apparent of separating foods into two grand divisions, animal and vegetable, and of selecting a basis for each. It is needless to here fully explain the manner in which these tables were prepared. For the details, reference is made to the original form of publication. (Vol. xxxiv., Amer. Assoc. Advancement of Science, 1885, page 504.) The statement is sufficient, now, that pure lard, at 12 cents per pound, and average ox beef, flesh free from the bone, at 16 cents per pound,

taken as the basis, gives the average cost of the nutrients in animal foods as 72 cents per pound for protein, 12 cents for fats, and 7 cents for carbo-hydrates. This assumes the proper ratio between fats and carbo-hydrates to be 1.75 to 1; so that to combine these two, the quantity or per cent. of fat in any analyses is multiplied by 1.75 and added to the carbo-hydrates. For vegetable foods, the potato, at 60 cents per bushel, or 1 cent a pound, is the basis, and the value of vegetable protein thus fixed at 10 cents per pound, and of carbo-hydrates at 4 cents per pound.

Based upon these values, the following tables have been compiled. They give the chief nutrients, the computed value, and the average price, approximately, of 100 pounds of about thirty different dairy products, and, for comparison, an equal number of other common articles of food, one-third animal and the rest vegetable. A column is added at the right of each table, indicating by the signs plus (+) and minus (—), whether the usual selling price, as stated, is more or less than the computed food value.

Table Illustrating the Differences in Dairy Products, and Comparing the Latter with various other Standard Food Products.

MILK FROM VARIOUS DIFFERENT BREEDS OF COWS, WITH BUTTER, CHEESE, ETC.	Pounds Protein in 100 pounds.	Pounds Carbo-hydrates in 100 pounds.	Computed Value per 100 pounds.	Average Market Price per 100 pounds.	Price, Greater or Less than Value.
Cow's milk, chemists' standard	4.00	10.62	\$3 62	\$3 25	— <i>a</i>
Cow's milk, average all analyses	3.41	11.23	3 24	2 79	— <i>b</i>
Milk of Galloway cow	5.36	8.86	4 45	3 25	— <i>a</i>
of Bengali cow	5.19	10.07	4 44	—	—
of Devon cow	4.37	12.56	4 02	3 25	— <i>a</i>
of Jersey cow	3.98	13.88	3 82	3 50	— <i>c</i>
of Guernsey cow	3.97	13.63	3 81	3 50	— <i>c</i>
of Brittany cow	3.96	10.89	3 76	—	—
of Danish cow	3.90	10.69	3 56	—	—
of Ayrshire cow	3.76	11.65	3 54	3 25	— <i>a</i>
of Shorthorn cow	3.74	11.83	3 52	3 25	— <i>a</i>
of Kerry cow	3.40	10.96	3 21	—	—
of Dexter (Irish) cow	3.35	11.05	3 20	—	—
of Holstein cow	3.15	9.67	2 95	3 25	+ <i>a</i>
of Hollander cow	3.03	10.65	2 93	3 25	+ <i>a</i>
of Fribourg cow	2.84	11.68	2 86	3 00	+ <i>d</i>
of Dutch cow	2.78	11.42	2 80	3 00	+ <i>d</i>
Goats' milk	3.80	12.98	3 65	—	—
Sheep's milk	7.12	14.67	6 15	—	—
Skim milk (cow's)	3.06	6.15	2 63	1 77	— <i>e</i>
Buttermilk	3.78	5.89	3 13	1 77	— <i>e</i>
Condensed milk	16.07	60.06	15 77	20 00	+
Cream, average	3.70	48.51	6 06	12 50	+
Butter, average of all	0.86	146.15	10 67	25 00	+
Butter, Jersey	1.30	152.78	11 41	30 00	+
Butter, Ayrshire	1.40	151.81	11 42	25 00	+
Butter, Holstein	2.65	143.55	11 82	25 00	+
Cheese, full cream average	27.16	55.78	23 46	15 00	—
Cheese, pure Jersey milk	28.18	64.81	24 48	15 00	—
Cheese, half-skim	27.62	38.92	22 61	12 00	—
Cheese, skim-milk	22.65	21.50	25 01	10 00	—
Cheese, whey	8.88	66.91	11 08	—	—

NOTE.—*a*, at rate of 7 cents per quart; *b*, 6 cents per quart; *c*, 8 cents per quart; *d*, 6½ cents per quart; *e*, 4 cents per quart.

Table Illustrating the Differences in Dairy Products, and Comparing the Latter with various other Standard Food Products.

STANDARD ARTICLES OF HUMAN FOOD.	Pounds Protein in 100 pounds.	Pounds Carbo- hydrates in 100 pounds.	Computed Value per 100 pounds.	Average Market Price per 100 pounds.	Price, Greater or Less than Value.
Beef, without bone, average.....	21.39	9.08	\$16 32	\$16 32	—
Veal, medium fat	18.88	13.89	14 57	15 00	+
Mutton, fat	14.80	63.73	15 12	15 00	—
Pork, fat	14.54	65.35	15 04	13 00	—
Fowl, domestic.....	18.49	17.54	14 54	16 00	+
Hens' eggs	12.55	21.74	10 56	10 65	+ <i>f</i>
Salmon.....	13.10	12.67	10 32	30 00	+
Mackerel.....	23.42	11.83	17 69	10 00	—
Codfish, dried	17.90	2.25	13 05	8 00	—
Oysters	4.95	3.27	3 97	10 00	+
Fine wheat flour	8.91	76.12	3 94	3 00	—
Coarse wheat flour	11.27	75.79	4 16	2 50	—
Oat meal.....	15.50	74.37	4 52	3 00	—
Corn meal.....	12.17	78.02	4 55	1 50	—
Fine wheat bread	6.82	53.69	2 83	4 00	+
Coarse wheat bread	6.23	51.32	2 67	3 00	+
Potatoes	1.79	20.84	1 01	1 00	—
Rice	1.81	76.61	3 24	6 00	+
Beans	23.56	52.10	4 44	4 00	—
Pease	22.63	56.25	4 51	5 00	+
Cabbage.....	2.95	9.24	0 66	1 00	+
Onions	1.68	10.99	0 61	2 00	+
Tomatoes	1.25	4.66	0 31	2 00	+
Sugar, from cane.....	0.35	96.73	3 90	6 00	+
Honey	1.29	81.43	3 39	25 00	+
Apples	0.39	13.74	0 59	1 50	+
Dried apples	1.06	55.97	2 35	—	+
Peaches	0.65	12.57	0 57	—	+
Strawberries	1.07	8.48	0 45	—	+
Grapes	0.59	17.11	0 74	—	+
Banana, yellow, hard.....	1.41	30.85	1 23	—	+
Banana, fully ripe.....	4.82	20.96	1 32	—	+

NOTE.—*f*, 16 cents per dozen.

Certain general explanations and remarks should be made in regard to these tables before referring to any special points of interest. In each table the first column gives the name of the article of food to which the figures on the same line apply. The remaining columns in the two tables are duplicates in their headings and objects. The column headed "Protein" gives in pounds and hundredths of a pound the average quantity found in one hundred pounds of the article named. By "protein" is meant that class of compounds, the most important of all the ingredients of food, whose four elements are carbon, oxygen, hydrogen, and especially nitrogen (with, perhaps, a little sulphur or phosphorus). Under the head of protein are, therefore, included what are variously called albuminoids, gela-

tinoids, nitrogenous parts, and proteids; the most familiar example of which is the albumen, or "white" of eggs. The next column, headed "Carbo-hydrates," gives likewise the quantity of this class of nutrients in one hundred pounds, expressed in pounds and decimals. These substances include sugar, starch, dextrin, digestible woody fibre, etc., which, as well as fats, are composed of the three elements, carbon, oxygen and hydrogen. It should be especially noted that in these tables, to save a column and simplify their appearance, special columns for fat have been omitted, and the fats have been included in the columns of carbo-hydrates, being first reduced to an equivalent on the ratio previously stated. This accounts for the apparent anomaly of the figures in this column, in some cases—butter, for example—indicating more than one hundred pounds of carbo-hydrates in a hundred pounds of the article named (!). The explanation is as given—that the fat, having the higher nutritive value, has been multiplied by 1.75 before adding to the carbo-hydrates proper. The reason undoubtedly was, that the nutritive parts of food are commonly, if not correctly, classed as flesh-forming and heat-producing, or life-sustaining. Fats and carbo-hydrates both belong to the latter class, and hence are expressed in combination. In these tables, therefore, the protein columns represent flesh-forming parts of the food, and the carbo-hydrates columns, heat-producing. (It is a recognized fact that this last classification is defective in several particulars, but especially because the protein of food may be changed in the body into fats and carbo-hydrates, and serve, as do the latter, for fuel in sustaining animal heat and life.) These two columns are based upon fixed facts, determined by chemical research, and not liable to change, although slight modifications may result from adding new analyses, and the articles may, in the course of time, while maintaining the same name, acquire new characteristics. The next column, headed "Value," is based upon those before, with the rates assigned for protein and carbo-hydrates, per pound, in animal and vegetable substances, and thus gives the actual value of the nutrients in one hundred pounds each of the foods named, computed upon their chemical composition. If exceptions are taken to the assumed prices of the basic articles, it is manifest that by a simple calculation, based upon existing market rates, the columns of food values may be easily reconstructed to suit any given locality. As the figures stand, however, they are relatively correct, and serve our purpose better, in comparing different foods, than do those of the previous columns. The columns headed "Average Market Price" are simply for illustration, and will vary more or less with

time and place. The purpose of the signs in the right hand columns have already been explained.

It may be noticed that the tables do not include the mineral constituents of food, which are usually denominated the ash. No diet is complete without some mineral ingredients, and in milk for babes these are an important factor. But sooner or later after we begin to crawl—and sooner rather than later—we all, it is said, “eat our peck of dirt,” so that this omission may be regarded as unimportant, and, perhaps, be thus accounted for.

For the single object of showing the differences in dairy products, and hence, for this occasion, we should have found it more satisfactory to place the fats in a separate column, and also have a column of total solids. But I thought it best to use the tables as originally published, rather than change any figures.

At this point, attention is especially invited to the demonstration given by these tables of the cheapness, when compared with their nutritive value, of nearly all dairy products (butter excepted). Skim milk, buttermilk and cheese, at their usual retail prices, are cheaper, as nutritious food, than any other article on the list, and are approached in this respect only by fresh mackerel and dried codfish. Butter is an exception, and, while it unquestionably serves special purposes in the human diet, it must, upon the basis of its chemical composition, be regarded as a delicacy or luxury, and not as a food. It ordinarily costs two or three times its real food value, and often more. Of the more solid foods not specially perishable, nothing begins to compare, in cheapness, with cheese. What shall be said of the domestic economy of America, where more butter and less cheese are consumed, *per capita*, than in any other nation in our zone? And what of the wisdom of the lawmakers, in some of our States and great cities, who, to escape the difficulties of regulating the milk traffic, utterly ignore the vital question of cheap and wholesome food for the poor, and, sanctioned even by boards of health, absolutely prohibit the sale of skimmed milk, and actually authorize the destruction of all that can be found!

Now, let the consideration be confined to that part of the first table which relates to milk. Great differences are here shown in the composition, and hence the value of the average milk of cows of different breeds. It is worthy of notice that the milks which, as shown in the column for carbo-hydrates, have the most fat, are, as a rule, also the richest in protein, or curd. This table indicates at once the breeds of cattle whose milk we should buy, if consumers, and which we should keep, to be the producers of milk of high quality. The milk

of the chemists' standard, "average cow's milk" (as determined by very many analyses), and of all the breeds enumerated, except four, usually sells for less than its computed value. Four breeds, all of the same general class of stock, yield milk so low in its nutrients that it is, on the average, not worth the prices at which it usually sells. This difference in value would be still more marked, if the same selling price was assigned to all milk, but special allowance is made in the table for higher prices for milk of exceptional richness, and low prices for that of poorest quality.

Manifestly, we do not buy milk, and we are foolish if we produce it, for the water it contains. The greater the proportion of water, the poorer, less valuable the milk. It is the solid portion, and that only, which gives milk its food value, and I firmly believe the time is near at hand when its commercial value will be fixed by the total solids. Indeed, a system of grading milk according to its solids, and selling it at different prices, fixed by its quality, has already been inaugurated by at least one enterprising milk dealer in Philadelphia. To illustrate: compare the milk of one of the breeds of high quality, and one of those of a low standard, with the general average. We will take the fourth from the top, the Jersey, and the fourth from the bottom, the Holstein, as being familiar breeds, and expand the figures of the table, to give the full average analyses:

KIND OF MILK.	Water.	Solids.	Casein.	Fat.	Sugar.	Ash.	Value per cwt.
Maximum, Jersey-----	85.18	14.82	3.98	5.06	5.03	.75	\$3 82
Mean, Average of all....	87.31	12.69	3.41	3.66	4.92	.70	3 24
Minimum, Holstein-----	87.92	12.08	3.15	3.30	4.90	.73	2 95

A graphic illustration is more satisfactory than the mere figures. Three sets of glass jars, six in each, can be prepared so as to show respectively the component parts of one gallon of each of the three grades of milk represented by the figures in the table just above, and thus strikingly exhibit the difference in composition of these representative samples of milk.

The question may be asked: Is not this theoretical? Not at all! Excepting the single item of the relative nutritive value of fats and carbo-hydrates, everything about these tables is fact,—simply the condensed record on innumerable facts, determined by many careful men, working through a long term of years.

Is this not all scientific work? Yes, it is, mainly, the work of scientific men. But if the word "science," which to some is so repugnant, is, as it ought to be, interpreted as meaning simply the truth, or, as Davy so well defined it, as "common sense, refined and classified," there seems no reason why these records should not be accepted by the most "practical" man. While I have the most profound regard for science and scientific methods, I measure the value of both solely by their practical results. And I believe that the statements thus far made herein, accord perfectly with practical experience. They are fully substantiated by the facts developed in the dairy farming of this country, at the present time, and by its allied industry and commerce.

So far recorded facts. But now, when we come to a discussion of the lessons they teach, and seek for examples in practice, we necessarily reopen "the battle of breeds." Only facts which can easily be authenticated will be given, and comparisons will be fairly made, but it will be impossible to occupy strictly neutral ground. The question is, Which cattle produce the best milk,—the best to sell, and the best to buy? I will not attempt to further argue that the best milk is the most profitable, for seller as well as for buyer. We will take the most familiar rival dairy breeds,—the Holstein-Friesians (as now called) and the Jerseys. According to the chemists, the average milk of Holstein cows has but 12.08 per cent. of solids, including 3.30 per cent. of fat. This would barely escape the lowest legal standards that are justifiable. It will readily be understood that the *probability* is, that more of the milk of cows of known breeding has been from animals above the average quality, rather than below. Do practical results sustain the testimony of chemistry? Within two years, I have personally known of two herds of highly bred Holstein-Friesian cattle, many of them imported, and valued as better than the average of their breed, owned in two different States, by men of absolute integrity, and yet both these owners have suffered the penalty of the law, because the milk sold from their herds, and which they insisted was pure milk from their fine cows, fell below the local standard in their respective States. The case of Uriah Borten, of Rancocas, N. J., the facts of which have been given to the public, is another of a similar nature. I know of the case of a substantial dairy farmer, who made his whole living from his farm, and who sold off a profitable dairy herd of mixed blood, and replaced them with Holsteins, in which he invested all his savings. He did well in the sales of cattle, became a large importer, and one of the most highly esteemed

expert judges of the "blacks and whites" in his section of the country. Lately he surprised his neighbors by selling out his pure-bred cattle, stocking his farm with grade Jerseys, and resuming his old dairy business. Upon being asked to explain, he stated that he was unwilling to continue selling to other people, as fine dairy stock, animals which in his own practice had proved to be unprofitable; that he had lost, by keeping Holsteins as his dairy herd, about as much as he had made trading in them, and resolved to return to stock that could be kept at a profit. Another case, with the details of which I am familiar, is this: A man, whose name you would all recognize, owns a large farm near one of our principal cities, well adapted for milk production. He had a stock of Jerseys and grade Jerseys, and mixed-bloods, or "natives," and bought a good milk route, on which he disposed of their products. The demand soon exceeded his supply, and upon the advice of friends, he purchased Holstein-Friesians to increase his herd. Fancying the fine, large animals newly acquired, and having ample means, he sold off all but three or four of his Jersey cows, and, with this exception, stocked up entirely with Holsteins, buying at high prices from several of the most celebrated breeders in America. Almost immediately his milk route began to run down, and he had nearly lost his whole trade before he became satisfied of his mistake, and began to sell Holsteins and buy Jerseys. Now I see his name, every few weeks, as the buyer of registered Jerseys, from the most noted deep-milking families. I was lately told by the farmer of this gentleman, that the latter had become fully convinced as to which breed of cows gave the best milk, and were the ones best adapted to a profitable milk-selling business. Our table gives, for average Holstein milk, total solids, 12.08, and fats, 3.30. Not long ago I saw the record of the analyses of twelve samples of milk, from five exceptionally fine Holstein cows—none better anywhere—and one or more being at the time of examination specially fed to produce rich milk for a butter trial. The work was done by an eminent chemist, and the average result was, total solids, 10.93, and fats, 2.84. Analyses of the milk of a herd of Holsteins near Philadelphia, given by the owners, in 1884, averaged for total solids, for April, 11.33; May, 11.59; June, 11.64—all on liberal rations of substantial and good milk producing food. At the State Experiment Station in Wisconsin, examinations of Holstein milk gave total solids, 11.28, and fat, 2.88. For three consecutive years, at the Royal Dairy Show in London, the milk of the Holsteins exhibited has been tested and found to average, total solids, 11.80, and of this 2.97 per cent. was fat. Such milk cannot be sold, under

the laws of the State of New York, outside the county in which it is produced.

Let us see if milk of a better quality cannot be found. The chemists' average for Jersey milk, according to our table, is for total solids, 14.82, and for fats, 5.06. As before remarked, this may be a little high, and for the reasons stated. But I have in my possession the record of more than a year, of weekly tests made of the milk sent to Philadelphia daily, for sale, from a herd of registered Jersey cows, owned by Mr. H. Lippincott, of Cinnaminson, N. J. The dealer who receives this milk, on some day in every week, according to his fancy, samples the milk and has the total solids chemically determined. The record for the herd for a year just closed, shows a range from 13.13 one week in June, to 16.16 in January, and an average for the year of 14.76 per cent. total solids. This comes pretty well up to our standard (only 6-100ths of 1 per cent. short), and the record would undoubtedly have been higher but for the fact that a full half of the herd were heifers with their first calves. In passing, it may be well to notice that this record shows what always proves true, that the lowest per cent. of solids in a year is at the flush of June pasturage and during the heat and flies of July and August, and the best milk is from good Winter feed. Mr. Lippincott's monthly averages were as follows: June, 14.10; July, 13.83; August, 14.03; December, 15.21; January, 15.46; February, 15.19. There is a still better record for a whole year. The dealer who handles Mr. Lippincott's milk also has the product of Mr. John P. Hutchinson's herd of registered Jerseys, at Georgetown, N. J., and has made similar tests of that milk. Although the details are not given, this dealer, Mr. George Abbott, Jr., of Philadelphia, informs me by letter that for the entire year of 1886, the milk from Mr. Hutchinson's herd averaged 15.45 per cent. solids. This is more than one-half per cent. above the standard of the table. He adds, as further examples, the following averages of solids, for the year 1886, in the milk of certain herds handled by him, and says, "These are first class *representative* herds of the breeds named, and the averages are for the entire year": Registered Jerseys, 14.37, 14.49, 14.77, 14.80, and 14.93; registered Guernseys, 14.61, 14.68, and 15.14 per cent. The average of the ten herds examined by Mr. Abbott is 14.80, which is a practical endorsement of the table, or the average as fixed by science.

During a long period of close observation at the New York Agricultural Experiment Station, where the milk from several unregistered Jersey cows was tested daily, the total solids averaged 14.45, ranging from 13.70 to 15.90. During the trial a great variety of food was used,

sometimes being intentionally poor. Unfortunately, the percentage of fat, as distinct from the other solids, was not taken; but one may always be certain that where the total solids run above $13\frac{1}{2}$ per cent. the milk is rich in fats, for instances of "solids not fat," above 10 per cent., are very rare. While at Houghton Farm, I had the milk of Jersey cows not regularly but repeatedly examined. The solids ranged from 13.72 to 15.96 per cent. and the fat was never found below 4.30 in the milk of the herd, while it sometimes reached 6.61 per cent. and averaged 4.93 per cent. So much for the quality of the average milk of good business herds of dairy cows.

The impression prevails in some places, that while the milk of Jerseys is of high quality, it is always in small quantity per cow. This is rather outside the bounds of my present subject, but I will venture to briefly notice this point. The criticism is not sustained by the facts. The habit of an even and long continued flow of milk, which is one of the most valuable characteristics of this breed, and of great importance to the producer of milk for sale, results in much larger annual records of milk product in good dairy herds of Jerseys than they are generally credited with. One year while I was at Houghton Farm a herd of fifteen, including two aged cows and three undeveloped heifers, produced an average of 5,844 pounds 3 ounces, or $2,718\frac{1}{4}$ quarts per head. It is very well known that dairy herds, kept for the quantity of milk produced, but with little regard to quality, and maintained by frequent culling and purchases of fresh cows, are considered as doing well to average 2,800 quarts per cow, or 6,000 pounds. Herds capable of an annual yield of 3,500 quarts, or 7,500 pounds a year, to every cow fed for the year, and which in quality reaches the New York standard, are exceedingly rare. Yet Jersey herds, maintained by their own increase, are by no means uncommon, which average over 6,000 pounds of milk a year, and that of the highest quality. Mr. A. B. Smith, of Eagle, Mich., in the year 1885, had a herd of six pure Jersey cows and three high-grade Jerseys, which averaged 7,100 pounds of milk each. The large herd of registered Jerseys at Deerfoot Farm, Massachusetts, where the daily record of every cow has been kept for fifteen years, shows a total average of about 1,500 quarts or 5,400 pounds per head for this long period. Single cows in this herd averaged 2,933, 2,941, and 3,371 quarts a year, for seven successive years, being from 6,200 to 7,250 pounds. The Echo Farm at Litchfield, Conn., have published a list of the names and numbers of a dozen of their registered Jerseys, several of them ten or twelve years old,

with their yearly milk yield, which averages for the lot 8,385 pounds or 3,900 quarts. Messrs. Miller & Sibley of Franklin, Penn., have taken pains to purchase and to breed Jersey cows of large milking habits, and, as showing their success, they publish the records of twelve cows which averaged for a year 8,700 pounds or over 4,000 quarts of milk each. One heifer with first calf gave 10,101 pounds in twelve months, before three years old; another young cow gave 10,329 pounds on ordinary feed; and an older one, 16,153 pounds, or an average of 20 quarts a day for the whole year. That this last yield was milk of good quality is sufficiently proven by its making over 927 pounds of butter, or a pound of butter to every 8 quarts of milk. These facts show that there is no trouble in getting Jersey cows whose product is large in quantity as well as high in quality.

A letter recently received by me from Mr. Edward Austen, of Filston Farm, Glencoe, Md., is appropriate in this place. I requested this gentleman to send me the annual yield of his cows, and what he knew of its quality. Mr. Austen is a man of accurate, systematic habits, who, after some years in business life, now owns and manages in person a dairy farm in Maryland, producing milk for sale in the city of Baltimore. He once said to me that he found the only safe milk business was making the best milk, and he would not keep a cow in his herd that did not prove profitable as a dairy animal. But his letter tells the story: "Twenty cows in my herd of A. J. C. C. Jerseys, being all the cows I had that had dropped more than one calf, yielded 119,495 pounds 14 ounces of milk in twelve months, being an average of $5,974\frac{3}{4}$ pounds for each cow, and every one of these cows bore a calf during the year. The milk of every cow was weighed separately, morning and night, every day except Sunday, when the yield was assumed to be the same as that of the previous day. Calves were allowed to suck their dams for three days and no estimate made of the milk so used. Eight of these cows were imported and the others home-bred. The lowest record for the year was that of an imported cow, over twelve years old, 4,181 pounds 6 ounces; and the highest was a home-bred cow, 8,383 pounds. I have only made two butter tests for seven days, among these cows. One gave 16 pounds 12 ounces, and the other over 14 pounds of butter, both on a trifle more than the regular dairy rations. I made quite a number of tests of one to three days, on the regular feed, and was quite satisfied that there was only one cow in the twenty that would not make over 10 pounds of butter per week on their reg-

ular daily food, and that a majority of them would go over 11 pounds. I have no other means of ascertaining the quality of the milk produced except the cream glass, which, used daily, showed from 19 to 31 per cent. of cream,—whatever that may prove. If we had an Agricultural Experiment Station in this State, I would know the per cent. of fat and total solids. I have always, since my boyhood, been a lover of cows, and began with Devons,—then tried Ayrshires, and finally Jerseys. For all dairy purposes I shall stand by the latter. The Guernseys stand high in my estimation, but I have reason to think that they are not such persistent milkers as the Jerseys. You did not ask my opinion of Jersey cows, or the respective merits of the various breeds, but I throw this in.”

Good cheese is made from whole milk, or that from which no part of the cream has been taken. In old times little else was thought of. Now so many inferior kinds are made that the designation “full cream cheese” is given to the standard product of first quality. The differences in this class of dairy products, to which I shall briefly refer, are not those incident to the processes which result in “skims” and “filled” cheese (lard or oil substituted for fat removed in cream) but relate to the variations occurring in the quantity and quality of full cream cheese made from an equal weight of whole milk from different breeds of cows.

One would not at first think that milk of extreme richness of fat or cream, and specially adapted to butter making, would be desirable for cheese. But in well made cheese, a very large share of the total solids of the milk are secured in the product, nearly all the caseine and the fat, although most of the sugar escapes in the whey. Consequently, that which is richest in total solids will make the most cheese per hundredweight of milk; and the general statement is true, that milk best suited to butter is most profitable for cheese. The data regarding cheese made from the milk of pure bred cows of different breeds is meager, but the principle stated is borne out by experience with Jersey milk. The general average in good cheese making districts is ten pounds of cheese to every hundredweight of milk; with milk from pure Jerseys, in large number, on the common factory plan, it has been found that the same weight of milk will give over twelve pounds of cheese, a gain of more than 25 per cent. in quantity of product. At several public exhibitions in Canada during recent years, and also at the Ontario Experiment Farm, the milk from selected cows of different breeds has been tested in various ways, and among the rest with reference to the available curd or

cheese making qualities. (The animals being few in number, I do not regard these results as alone settling any points of comparison, but they may serve in corroboration of other statements made.) The details have been widely published, so it is sufficient, for present purposes, to state the general results. The order of merit as cheese-makers indicated was as follows: 1st trial, Jerseys, Shorthorns, Ayrshires, Guernseys, Devons, Galloways, Holsteins, Polled Aberdeens; 2d trial, Jerseys, Ayrshires, Shorthorns, Holsteins; 3d trial, Jerseys, Ayrshires, Devons. In the second trial, the Ayrshires led on quantity of curd without fat, but with curd *and* fat took second place. With this exception, the Jerseys stood first in quantity of curd as well as of fat. In regard to quantity of caseine alone, in the milk of different breeds, the table previously referred to shows their relation with approximate accuracy, in the column headed "Protein."

The same table gives the differences in chemical composition and computed value, between average full-cream cheese, the same made from pure Jersey milk, half skim cheese, and that made from skim-milk and from whey. There is very little light here as to the merits of different breeds of cattle, as respects the quality of cheese made from their milk, although the surprising fact is shown that Jersey made cheese is so much richer in both caseine (proteids) and fat, that it is worth a cent more a pound than the average full cream cheese of America, as an article of nutritious food. Upon this point, Prof. Arnold says in his *American Dairying*: "The business of the Jersey cow is emphatically that of butter making. Her milk, however, is rich in cream matter, and, contrary to the general belief, is capable of making as fine cheese as it does butter. It is a new feature, worthy of note in the uses of this breed of cattle, that their milk can, without the waste of its buttery matter, be converted into a strictly fancy cheese, as rich as English Stilton. Analyses of cheese from pure Jersey milk, made at Cornell University, have shown over 40 per cent. fat.

The table upon which we have been depending gives so little in regard to differences in cheese, that I append another, with considerably more data in this connection:

Table of Analyses of Different Kinds of Cheese.

DESCRIPTION OF CHEESE—100 POUNDS.	Water. lbs.	Fat. lbs.	Protein or Curd. lbs.	Ash. lbs.
1. Average of 83 samples Full-cream Cheese	35.75	30.43	27.16	4.13
2. Average of 21 do., N. Y. State Dairy Commissioner's Report....	27.82	28.61	38.10	4.39
3. Full-cream, premium at N. Y. State Fair. (Flint's Dairy Farming; of pure Jersey milk).....	38.46	31.86	25.87	8.81
4. Full-cream, premium at N. Y. State Fair	28.37	31.28	30.52	3.83
5. Full-cream, premium at N. Y. State Fair	28.62	29.90	37.66	3.82
6. Full-cream, premium at N. Y. State Fair	33.75	28.95	33.70	3.60
7. Full-cream, premium at N. Y. State Fair	28.11	41.03	28.18	2.68
8. English average, by Sir Lyon Playfair	38.78	25.30	31.02	4.90
9. English Cheddar, two years old, Prof. Johnston.....	36.04	30.40	28.98	4.58
10. English Double Gloucester, one year old, Prof. Johnston.....	35.81	21.97	37.96	4.25
11. English North Wilts, one year old, Prof. Johnston.....	36.34	28.09	31.12	4.41
12. Half-skim, average of 8 English samples	46.82	20.54	27.62	3.05
13. Half-skim, N. Y. State	38.25	19.93	38.48	3.24
14. Skim-milk, average of 9 English samples	48.02	8.41	32.65	4.12
15. Skim-milk, English, one year old....	43.82	5.98	45.04	5.18
16. Whey Cheese, average 6 samples....	23.57	16.26	8.88	4.76

One product of the dairy only remains to be considered. This is butter,—the culmination of the dairyman's art. This great delicacy consists of the natural fat of the milk, with some water, and should contain nothing else, except as we choose to flavor it with salt. The perfection of butter making is to secure these fats, separated from the serum or fluid of the milk, and gathered in a mass, with as little chemical and physical change as possible. So it may be said that we *get* the butter from the milk, rather than “make” it. Unfortunately, perfection has not been reached in this art, and there is always present in butter, mingled with the fats and mainly dissolved in the water, more or less of the protein or curd and of the sugar of milk. It is these constituents which play the mischief with butter, by starting the chemical changes leading to rancidity and decomposition, and which we consequently endeavor to reduce to the minimum.

While, therefore, in nearly all other food products, the presence of protein (because of its high nutrient quality) adds to the value of the article,—if we place butter at all in the list of foods, that which has the highest nutrient value is the poorest in those qualities which go to make fine butter. We buy butter for its fat, and the more fat and the less water and protein, the better it is, as butter. In our table comparing foods, there are averages given of butter of different kinds, and, for the reasons stated, the best butter is designated by the highest figures in the column of carbo-hydrates, and not in the "Value" column.

Examining butter in detail, it is found to be composed of very complex fats, the chemist naming eight or ten, which number he divides about equally into insoluble fatty acids and volatile fatty acids; also, in their combination with glycerine, into solid fats and fluid fats. It is not my purpose, however, to go into these details, but to call attention to the differences in butter, as it usually exists. Among the many writings upon the composition of butter none has seemed to me so ingenious and painstaking in method, or practical in conclusion, as the work of Dr. S. M. Babcock, chemist of the New York Agricultural Experiment Station at Geneva. At the annual fat stock and dairy shows in Chicago, in 1885 and 1886, and at the Bay State Agricultural Society's fair at Boston, in October, 1886, I was able to secure for this gentleman samples of the premium butters of known origin,—the certificate of the maker, as to the method and breed of the cows giving the milk, accompanying every exhibit. Upon these Dr. Babcock pursued his investigations, and he personally obtained another set of samples of butter, with the history of each, at the New York Dairy and Cattle Show, May, 1887. Based upon his examinations of this last lot, Dr. Babcock prepared his report upon "Variations in the Composition of American Butters," which I have already mentioned, and to some parts of which I now wish to refer. The butters upon which he worked, and which gave the results presented in his tables (see *Proceedings of Society for the Promotion of Agricultural Science*, eighth meeting, New York City, August, 1887, page 17), were twenty-six in number, seven being from Jersey cows, seven from pure Holstein-Friesians, two from pure Guernseys, one from Ayrshire, and nine of premium butter from mixed milk, no special breed predominating.

These samples were examined to determine the variation liable to occur in the best grades of American butters, and especially to note how far these variations might be attributed to breed and to the individuality of the cow. (Some of the samples representing each

breed were from the milk of a single registered cow.) The general determinations were noted as a matter of some interest, but attention was mainly devoted to the composition of the butter fats. The following are the average extreme figures for these prize butters, and probably fairly represent the average composition of first-class butter in this country:

	Water.	Fat.	Ash.	Curd.
Highest.....	13.16	87.87	4.23	1.02
Average.....	10.82	86.44	2.14	0.60
Lowest.....	9.26	83.19	0.96	0.34

It may be noted that these butters averaged better than those in the food table, the average here being about equal to the Ayrshire butter in that table, and the poorest here being rather better than the poorest there. (It should also be stated that none of the milk and butter of these and other recent examinations by Dr. Babcock are included in the averages of the food tables previously noticed.)

The further examinations comprised determinations of the relative quantity of volatile fatty acids; of insoluble acids, by what is called the "Iodine Number"; of the melting point; and a test devised by Dr. Babcock of the viscosity of soap solutions made from butter. The technology of the chemical processes it is hardly desirable to describe here, but they are necessarily referred to by their peculiar names in the following abstract from Dr. Babcock's table and his deductions from it:

Comparisons of Butters from Different Breeds of Cows.

BREED.	Iodine Number.	Melting Point.	Viscosity Number.
		Per cent.	
Jersey.....	31.2	34.0	74
Guernsey.....	31.5	33.3	110
Ayrshire.....	37.8	33.5	66
Holstein.....	40.0	33.4	237
All others.....	35.6	33.8	93
Average of all.....	35.6	33.7	127

The volatile fatty acids are not included in the table, because it was found that while the individual variations within all the breeds

was very great, the influence of breed did not appear in this particular.

The insoluble fatty acids were found quite constant in amount, but very variable in composition. The "Iodine Number" indicates the relative proportion of oleic acid and the absolute quantity of this soft fat in the total fats of the butter. "The influence of breed upon this factor is very great; one of the most marked characteristics of Holstein butter, when compared with that of the Jersey or other breeds, being shown in its high per cent. of olein. This renders butter less firm in warm weather, although it does not materially lower the true melting point." (The quotations are from Dr. Babcock's article. He preferred to compare Holstein and Jersey butter because they showed the greatest contrast, and also because, having several samples of each, equal in number, the averages were deemed more reliable than those of the other breeds of which he had only one or two samples.)

The melting point is expressed in degrees of the Centigrade thermometer, and the record illustrates the observed fact that it requires a higher degree of temperature to melt Jersey butter than the average.

From a test not shown by the above abstract from his table, Dr. Babcock determined "that the proportion of palmitic and other fatty acids of less molecular weight than oleic and stearic, is considerably greater in Jersey than in Holstein butter."

The viscosity test indicated breed peculiarities very clearly, as well, in the composition of butter from single cows not shown by other methods. This is a very clever method of testing, and especially applicable to the detection of adulterants in butter; it is fully explained in the Report of the N. Y. Agricultural Experiment Station for 1886. In this instance, the pure Holstein butters had an average viscosity of 237, ranging from 112 to 461; the pure Jersey butters averaged 74, and ranged from 50 to 103. These numbers are relative only, but representative of a marked contrast. Dr. Babcock says, "The other conclusions in regard to the differences which exist between Jersey and Holstein butters are confirmed by the viscosities of their soap solutions," (i. e., by his viscosity test).

Although these fine analytical tests may not be well understood by these brief technical references, it seemed proper to adhere closely to the conclusions of the original report, before stating the practical deductions. Now, as to the latter: "The influence of breed of the cow upon the composition of the butter fat is no less marked than it

is upon the composition of the milk, and, contrary to general acceptance (this statement is based upon other investigations), that does not appear to be materially affected by the character of the food." (Dr. Babcock.) Among the effects of breed thus noted, are those differences in butter which relate to its firmness, resistance to heat, texture or "grain," flavor and general high quality, by reason of a larger proportion of the more delicate fats. In all these particulars, butter from pure Jersey milk excels, while that from other breeds follows in the order given in the last table.

In conclusion, it is hoped that facts of a reliable character have been herein presented in sufficient number and with such reasonable distinctness as to show the great differences which occur in dairy products,—milk, cheese and butter,—the influence of breeds of cattle in causing these differences, and the consequent practical value of a study of this subject when selecting stock for the profitable conduct of any branch of dairying.

NUMEROUS FACTS
ABOUT
JERSEY CATTLE.

NUMEROUS FACTS ABOUT JERSEY CATTLE.

JERSEYS FOR BUTTER.

The strongest and best claim for the Jersey is as the butter cow. As such she stands unrivalled. It is when used as a butter-producer that the Jersey gives the greatest profit. Reports are constantly appearing of some remarkable performance of a Jersey cow in making butter. In this pamphlet authentic accounts are given of three registered cows which each produced over nine hundred pounds of butter in one year. These cases illustrate the possible attainments of the Jersey. But it is extremely misleading and discouraging alike to breeders and buyers for any one to infer or to argue from such exceptional records that every good Jersey cow should be expected to do likewise, or even approach such results. Mr. Smith's record of 321 lbs. of butter, the average product per cow, is a very much better example of what may be expected from a good Jersey herd kept for profitable butter-making. Every one with dairy experience knows that a cow which yields a pound of butter a day for a long time is doing well. A record of ten pounds a week, sustained for several months, indicates a very good cow, whatever the breed. "Fourteen pound cows" are very numerous among Jerseys, but they are still the exception, not the rule, and the number is really limited which continue to give two pounds a day for any length of time. It may therefore be doubted whether such truly remarkable records as those herein recited are of service to Jersey interests in general, except as evidence of the inbred tendency of this race to butter-production.

A Jersey herd with an average product of over three hundred pounds of butter a year for every female over two years old may be called a good herd. Three hundred and fifty pounds for the average is a worthy ambition, and may be reasonably expected as the result of proper effort. Four hundred pounds is a very high annual average, and there are few herds of any size capable of such a result.

Such satisfactory averages are attained only by the careful examination and *careful* testing of single cows, that the poorer ones may be developed or weeded out. And it is by this process of close observation and judicious private tests that Jersey cows are periodically discovered capable of performances in butter-making like those of Eurotas, Mary Anne of St. Lambert, Matilda 4th, Massena and Landseer's Fancy.

H. E. A.

JERSEYS FOR MILK.

It is a prevalent but mistaken idea that Jerseys are generally small milk-producers. Their habit of persistency in milking—one of the important characteristics of the breed—results in creditable records, as a rule, for the milk-product of the year. The annual milk-product of Jerseys in America averages decidedly more than that of our “native” milch cows. Dairy herds kept for the quantity of their milk-product, with little regard to quality, and maintained, by frequent sales and purchases, at that, are considered satisfactory if they produce an average of 700 gallons, or 2,800 quarts of milk a year. This is 6,000 lbs. Herds capable of an annual yield of 3,500 quarts, or 7,500 lbs., are very rare. Yet Jersey herds maintained by their own increase are by no means uncommon which average more than 6,000 lbs. of milk a year. Mr. Smith's herd, previously mentioned, made an average of 7,100 lbs. ; Mr. Paddock's cow, Massena, gave 9,099 lbs. ; and twelve cows reported by Messrs. Miller & Sibley (see p. 116) ranged from 7,000 to 16,000 lbs. a year, four of them over 10,000 lbs. each, and an average for the twelve of 8,700 lbs., or over 4,000 quarts of milk per year !

JERSEYS FOR CHEESE.

Reports of the capability of the Jersey cow in cheese-production, especially Mr. Fuller's letters calling attention to the results of Canadian trials made by Professor Brown, have caused much comment and surprise. This is, however, a perfectly rational result. Economy in cheese-production is largely a question of the ratio of milk used to the cheese made, or, in other words, of the total solids of the milk. Jersey milk has long been known to have a higher percentage of total solids than that of any other breed. It has not been largely devoted to cheese-making, because it has been generally turned to more profit otherwise. Milk may do pretty well for cheese

which is not suited to making butter, while milk good for butter is almost certain to be equally good for cheese. Several years ago, at a factory in Winthrop, Maine, where the milk received was nearly all from pure or grade Jersey cows, more cheese to the hundredweight of milk was made than in any other factory record existing. This product, too, was noted for its exceptionally high quality.

JERSEY BEEF.

The first duty of the Jersey cow is to produce milk of the highest quality. To this service she is specially adapted, and this duty she faithfully performs. But the idea that if, for any reason, a Jersey is not profitable as a dairy animal, it must be thrown away, is extremely absurd. It is folly to expect to profitably make beef of a cow of any breed which has been steadily milked for twelve or fifteen years. But a Jersey of good age and full vigor, male or female, which is not breeding or milking, is as capable as the animals of any dairy breed to profitably convert its food into flesh. Jersey bulls have to be handled with care to prevent acquiring too much flesh. Steers of Jersey blood fatten easily and make excellent beef, as well as active, willing workers. Jersey cows full grown and not over ten or twelve years old, if dry and not in calf, will usually lay on flesh and fat readily.

The following is a record of two Jersey cows fed for beef because no longer useful dairy animals, although from different causes. One was an imported cow, the other of imported parents:

AGE.		LIVE WEIGHT.	DRESSED WEIGHT OF PARTS.			
			4 QUARTERS.	TONGUE.	TALLOW.	HIDE.
6½ years.	Nov. 1, 890 lbs. ;	Nov. 20, 950 lbs. ;				
	Dec. 14, 996 lbs.		537 lbs.	31 lbs.	91 lbs.	56 lbs.
8 years.	Dec. 1, 970 lbs. ;	Feb. 1, 1090 lbs. ;				
	Mar. 28, 1160 lbs.		640 "	41½ "	100½ "	68 "
						813 "

In both cases careful record of the food was kept, and it proved to be cheaply-made beef. And in both cases the meat was well marbled and the flesh exceedingly fine in grain, tender, juicy, and of good flavor. It was regarded as unusually good beef, the only possible objection being the deep orange color of the fat.

THE SIZE OF JERSEY COWS.

An objection to Jerseys often heard from persons not well acquainted with the breed is that the cows are small—too small to suit farmers generally. While it is true that there are many small Jerseys, it is also true that there are many of good size: and any breeder can,

with a little effort, build up a herd large enough for any dairy purposes. It is by no means unusual for Jersey cows to weigh over one thousand pounds when in working order. Mr. Burnett states that the average weight of the entire milking herd at Deerfoot Farm is about 1,050 lbs. In other cases where breeders have given special attention to size the average weight of a herd is as great. Mr. C. E. Brown, of Nova Scotia, who owns Nabritza (No. 5820), states that her usual weight is 1,500 lbs., and that she has weighed 1,650 lbs. at times. Her dam, Branitza (5388), was bought by Mr. Brown in May, 1876, when in very low condition, although she had a good frame and then weighed 790 lbs. She had been half starved all her life. She was then put on a generous diet, served in June, 1876, and until March, 1877, when Nabritza was dropped, the dam was steadily gaining. In November, 1877, Branitza weighed 1,120 lbs., in fair order—a gain of 330 lbs. in an adult cow. This gain while breeding seems to have given an impetus to the calf. Nabritza weighed 187 lbs. when two months old, 595 lbs. at eight months, 725 lbs. at twelve months, 1,055 lbs. at twenty months, 1,290 lbs. at three years, and 1,540 at four years of age. An own sister of this cow habitually weighs 1,050 lbs., and a son two years old weighed 1,200 lbs.

THE JERSEY COMPARED WITH OTHER BREEDS.

[From the *American Dairyman*, New York.]

Extract from a Letter by VALANCEY E. FULLER, of Oaklands, Hamilton, Ontario, Canada.

DEAR SIR: In the advance reports issued by Prof. William Brown, of the Ontario Experimental Farm, some most valuable and interesting comparative tests are set out between a cow of each of the breeds claiming special attention as dairy animals—namely, Jerseys, Ayrshires and Holsteins. The Jersey was 3 years old, weighed 830 lbs., calved February; the Ayrshire was 4 years old, of 1,150 lbs. weight, calved January; and the Holstein, 3 years old, weighed 900 lbs., calved January. . . . By a series of weekly tests conducted by Prof. Brown, from December, 1884, to July, 1885, we find that the following results were arrived at as to these three, out of twelve breeds, of which specimen cows were tested:

	CREAM PER CT.	BUTTER PER 100 LBS. MILK.	CHEESE-CURD PER 100 LBS. MILK.	TOTAL BUTTER AND CURD. LBS. OZ.	
Holstein,	11.9	2 lbs. 4 oz.	10.9	12	13
Ayrshire,	16.9	4 lbs. 5 oz.	12.9	16	14
Jersey,	19.9	5 lbs. 1 oz.	15.6	20	7

The Jerseys led all breeds in butter and in cheese.

The chemical analysis of milk from same source and in same tests showed the following total solids:

Jerseys.....	14.65 (first of all breeds).
Ayrshires.....	13.53 (second of all breeds).
Holsteins.....	11.88 (ninth of all breeds).

Some might contend that the Jersey was an especially good one. In my judgment, she was not above but rather below the average Jersey. Granting that this is not sufficient proof, as a rule the best are brought out at our Provincial and Toronto exhibitions. At the Provincial Exhibition just finished the Holsteins were represented in large numbers, about 3 Holsteins to every Jersey, many of the former with very large reported tests of milk.

At this exhibition tests were made by Prof. Brown and Prof. Barré, of the Ontario Experimental Farm, for milk, butter and cheese combined, according to the plan and count of points adopted in England and Scotland at the dairy fairs, as follows: (1) Weight of milk—one point is allowed for every pound given in 24 hours. (2) Quantity of butter—in England the standard is 3 lbs. to every 100 lbs. of milk; in Canada the standard is 3.5 lbs. to every 100 lbs. of milk; add or deduct 10 points for every one above or below. (3) Cheese-curd per 100 lbs. of milk—allow one point for every pound. (4) Time since calving—add one point for every ten days. All the cows were judged by the same count of points and under similar circumstances, but in different classes. Eight Holsteins entered in their class, 3 Ayrshires in theirs, 2 grade Short-horns in theirs, and 2 Jerseys in their class. The Jersey cow Rose of Eden led them all, making the largest score ever made by any cow of any breed in the world for a similar contest—namely, 109 points, and this for butter, milk, and cheese combined; Ayrshire second (83.85), Short-horn grade third (81.52), the other Jersey fourth (78.10), Ayrshire fifth (68.27), Holstein sixth (64.29), Holstein seventh (59.07), Short-horn grade eighth (55.57), Holstein ninth, tenth, eleventh, twelfth, thirteenth, and fifteenth (40.22), and Ayrshire fourteenth (49.42). The Jersey excelled the highest combined score of the Ayrshire 21 points and the highest of the Holsteins by 45 points. The lowest Jersey excelled every Holstein by over 13 points.

The averages of each breed were as follows:

	MILK IN 24 HOURS.	BUTTER PER 100 LBS. MILK.	WET CHEESE-CURD PER 100 LBS. MILK.
Jersey	25.56	7.28	20.30
Ayrshire.....	24.52	4.24	22.70
Holstein	32.19	2.98	16.59
Short-horn grade....	35.52	3.36	20.62

The highest milk record is that of a grade Short-horn, 46.80 lbs. The best milk record of Holstein is 37.60 lbs., and the lowest 23.60 lbs. Highest and lowest Ayrshire, 29.50 lbs., and 18.12 lbs. Highest and lowest Jersey, 27 lbs. and 24.12 lbs. Quantity of milk required to one pound of butter—Jersey, less than 14 lbs.; Ayrshire, over 23 lbs.; Holstein, over 33 lbs.; Short-horn grade, over 29 lbs. Here is the very strongest testimony, in the most open and public manner, and in the hands of disinterested experts, of the very great superiority of the Jersey, not for butter alone, but for that contained in milk, butter and cheese.

Lest it be contended that these two Jerseys were the pick of the Oaklands herd, I may say that Rose of Eden, for butter-production, does not rank as the first by any means in the Oaklands herd, but about seventh, and that the other Jersey has no butter record thus far.

The weather at the London Exhibition was very cold and wet, and doubtless all the cows gave less milk than at home.

At the Industrial Exhibition held in Toronto the following week, a competitive test was made of the various breeds, by the same count of points, under the same rules, and by the same experts. The Holstein men failed to enter any of their stock, though in number they far excelled the Jerseys and the Ayrshires at this exhibition. There were entered six Jerseys, three Ayrshires and one Devon. They were awarded the following positions, according to the results of the tests : Jerseys first, second, third, fifth, sixth and seventh places ; Ayrshires fourth, ninth and tenth ; Devon eighth. The cow Jolie of St. Lambert headed them all. Rose of Eden, which had contracted a cold at Provincial, stood second, and Sweet Briar of St. Lambert third. The average quantities given by the various breeds were as follows :

	MILK IN 24 HOURS.	BUTTER PER 100 LBS. MILK.	WET CHEESE-CURD PER 100 LBS. MILK.
Jerseys	23.22	5.57	16.36
Ayrshires	29.37	4.15	15.54
Devon (1).....	33.00	3.31	13.33

Taking these tests at both exhibitions, it will be seen that the Jersey largely excels all breeds in butter-production ; that the leading Ayrshire excels the Jersey slightly in cheese-curd at the Provincial, but at the Industrial, Toronto, the Jersey excels the Ayrshire in cheese-curd. Taking it as a whole, the palm must be awarded to the Jersey beyond any question of doubt, yet one must admire the record of the Ayrshire, whose progress to popular favor, though not so much heralded as some of the other breeds, is sure and steady.

Taking Prof. Brown's advance report, his dairy tests from December, 1884, to July, 1885, his analyses of milk, the public tests, it will be seen that the Jersey has corroborated in each the correctness of the results contained in the advance report, and shows clearly her ability to excel all other breeds save in the giving of water.

HOLSTEINS VS. JERSEYS.

[From the *Breeders' Gazette*, Chicago.]

By MAJ. CAMPBELL BROWN, of *Spring Hill, Maury Co., Tenn.*

When Mr. V. E. Fuller's two Jerseys beat all eight of the Holsteins exhibited at the London (Can.) Fair last fall, the breeders of Holsteins at once cried out that this was no fair test, claiming, among other things, that the Holsteins shown there were not fair specimens of the breed. And, indeed, looking at the wretched figure they had made, I myself was inclined to allow some force to this excuse, and suppose the public probably took the same view of it.

But I have lately read the details of a trial where the plea of poor representatives will not avail, and where the Holsteins were yet more decisively beaten. Moreover, in every point where comparison is possible, the results of this trial, the London Show, and the experiments of Profs. Brown and Barré at the Ontario Experimental Farm sustain each other remarkably.

In the fall of 1884, at the Amsterdam International Exhibition, Mr. Walter Gilbey, a prominent Jersey breeder of England, bought two out of the best six prize cows in the dairy classes and took them to England. One had calved in June, the other in July. After reaching England one took first prize in her class at the London Dairy Show, but lost the prize for the best milker "on account of the poverty of her milk."

Mr. Gilbey placed these two cows on trial beside two selected from his own herd. Two tests were made. In the first the cattle were on grass, but received also grain, hay, cabbage, bean-meal, etc.; in the second they were stall-fed. The object of the experiment was to ascertain, by a fair comparison, which breed was the more valuable for butter.

Mr. James Long, from whose letter to an English paper the following details are taken, was one of the twenty dairy commissioners sent from England to examine the cattle and dairies of Holland, and was also one of the judges at Amsterdam, where, after judging, he assisted Mr. Gilbey's agent to select his two cows.

The results of the two tests were as follows (the milk-yield is given in pints, the food consumed and the butter obtained in pounds and ounces):

FIRST TRIAL, FOURTEEN DAYS, ON GRASS AND FEED.

	POUNDS OF FOOD CONSUMED.	MILK-YIELD IN PINTS.	BUTTER IN LBS. AND OZ.
Two Jerseys averaged.....	906	524	28 03
Two Holsteins averaged.....	1,295	772	23 13

SECOND TRIAL, SEVEN DAYS, STALL-FED.

	POUNDS OF FOOD CONSUMED.	MILK-YIELD IN PINTS.	BUTTER IN LBS. AND OZ.
Two Jerseys averaged.....	755	194	13 03
Two Holsteins averaged.....	1,140	365	10 01

By taking the amount of food consumed and of milk and butter yielded by the Jerseys in each experiment as the unit of measure, we shall have the following table of percentages to represent the performances of the Holsteins. For greater exactness the calculation is carried to thousandths.

	FOOD CONSUMED (PER CENT.)	MILK- YIELD.	BUTTER- YIELD.
On grass—			
Jerseys.....	1.000	1.000	1.000
Holsteins.....	1.429	1.774	0.844
Stall-fed—			
Jerseys.....	1.000	1.000	1.000
Holsteins.....	1.497	1.881	0.763

There is nothing about this table to astonish the experienced breeder or dairyman. The Jerseys being butter cows, and bred for production of butter, made it more economically than the Holsteins. When taken from pasture and put on dry feed they fell off largely in milk, but hardly at all in butter. The Holsteins, on the other hand, being bred for milk and cheese, fell off less in milk and far more in butter.

But proceeding with the analysis of these tests, we find that, when at grass, the Jersey gave 1 lb. of butter to every 32 lbs. of feed, as against 1 lb. to every 54 lbs. for the Holstein. When stall-fed the discrepancy is still greater; the figures then stand: Jerseys, 1 lb. to $57\frac{6}{10}$; Holsteins, 1 lb. to $113\frac{6}{10}$.

The next step surprised me greatly. When on grass the Jerseys gave 1 pint of milk to $1\frac{73}{100}$ lbs. of feed, the Holsteins 1 pint to $1\frac{79}{100}$ lbs.—a difference practically inappreciable. When stall-fed the Holsteins required $3\frac{11}{100}$ lbs. to the pint of milk, and the Jerseys $3\frac{89}{100}$ lbs.; that is to say, the same food which made 5 lbs. of Holstein milk would make but 4 lbs. of Jersey milk when the cattle were stall-fed, but 4 lbs. of Jersey milk would make within a small fraction of as much butter as 8 lbs. of Holstein milk.

It seems that these prize-winning Holsteins proved actually unable, with large advantages of feed, to make as much butter from week to week as the Jerseys. In the first experiment they required 170 lbs. and in the second 197 lbs. of feed to make as much butter as the Jerseys manufactured from 100 lbs.

Mr. Fuller has already printed the experience of Profs. Brown and Barré at the Ontario Experimental Farm, and the results of the fair at London, Can. But it is well to place them alongside the tests of Mr. Gilbey, that your readers may see how remarkably they support each other. Look at this little table, the last I shall now inflict upon you :

AVERAGE YIELD OF BUTTER IN POUNDS AND HUNDREDTHS TO 100 LBS. OF MILK.		
	JERSEYS. HOLSTEINS.	
Prof. Brown's experiments.....	5.10	2.40
London (Can.) Dairy Show (two Jerseys and eight Holsteins)	7.28	2.98
Mr. Gilbey's experiments (two Jerseys and two Holsteins)...	6.58	2.97
Average.....	6.32	2.78

Two remarks seem proper here : I am sure that Prof. Brown's analysis figures are too low for both Holsteins and Jerseys, if well kept; but they preserve the proportion with a fair degree of accuracy. Again, I have treated the pint of milk, in Mr. Gilbey's tests, as practically a pound. If it should be the larger pint of a pound and a quarter the proportions will remain the same, though the average of richness for both Jerseys and Holsteins will be slightly lowered—not more, perhaps, than it would be raised by a correction of Prof. Brown's figures.

As confirming the results here given, Mr. Long states that the analysis of the milk of the Dutch breed of cows in every successive year since the establishment of the meetings of the British Dairy-men's Association shows its poorness in butter-fat. He says that there is scarcely an instance in which the fatty solids reach three per cent., the majority being, I believe, less than 2.65. But in the table above the general average is 2.78.

I know of no public trials where the results disagree with those here given, but I do know of two private tests in this State, in one of which about forty pounds and in the other about thirty pounds of milk were required to the pound of butter.

If the Holstein breeders really believe that their cattle are as good butter-making machines as the Jerseys, why do they not accept some of the challenges made by Jersey breeders? Or, if they object to that, why do they not make a few official tests and invite the presence of persons interested in rival breeds of cattle? As long as they

stuck to their competition with the old "general-purpose cow" for a combination of "milk, cheese, butter and beef," none of the advocates of other improved breeds cared to question their claims. But when they entered into competition with the beef breeds at Chicago, they quickly found their true rank as beef cattle; and if we can only get them to meet the Jersey a few times in public competition the relative rank of the two breeds as butter-producers can soon be fixed.

A SMALL JERSEY HERD AND A GOOD YEAR'S RECORD.

By G. B. SMITH (OF G. B. & C. S. SMITH), *Meadowbrook Herd, Eagle, Michigan.*

The writer has a herd of nine cows, six thoroughbred and three grade Jerseys. For the year 1885 they averaged nearly 7,100 lbs. of milk each and made 2,890 lbs. of butter. Each raised a valuable calf, and the thoroughbred cows, with the addition of younger animals and breeding bull, won \$218 in premiums in two weeks; also won \$25 in premiums on butter. The average price of our butter for the year has been $35\frac{1}{2}$ cents per pound; shipping expenses have been $2\frac{1}{4}$ cents per lb., leaving $33\frac{1}{4}$ cents. This made the cash income from the nine cows \$1,203 for the year. The value of calves, skim-milk, and manure can be estimated. During the winter the cows were fed good hay plentifully, six quarts of ground corn and oats, and half a bushel of mangolds daily; during summer nothing but pasture. From the middle of October until freezing they lived on pumpkins and mangold-tops. I had a piece of three acres of ground that was very light. For a month and a half I fed two loads of pumpkins and one load of mangold-tops daily to the stock on this piece of ground, and it became completely covered with droppings, so much so, that they could be fed there no longer. A great many farmers will not feed pumpkins to dairy cows, thinking they will be dried up. It certainly did not dry my cows up. They gained all the time, and our butter made from pumpkins and mangold-tops won second premium at the National Dairy Show. A good crop of pumpkins is a grand thing to help out fall pasture. My cows that calved in the spring gave more and richer milk in the month of November than in the month of July, and went into winter quarters doing and looking well, simply because I fed them pumpkins. They are an easy crop to raise, and should be raised by every dairyman. I raised 1,275 bushels of mangolds from one and three-quarter acres of

ground, besides wagon-loads of tops, and it was not as heavy a crop as the ground would have grown, as the seed did not germinate fully. With fodder-corn, roots, good hay, and ground feed dairy cows will do as well and even better in winter than any other season of the year; warm stables and pure water are also necessary. My nine cows now, in February, 1886, are making 10 lbs. of butter a day, for which I get 40 cents per lb. Five of them have recently calved; the other four are due in March.

RECORD OF LANDSEER'S FANCY FOR ONE YEAR.

[Extracts from a Letter in the *Jersey Bulletin*, Indianapolis, issue of February 24, 1886. BY WM. J. WEBSTER, of *Columbia, Tenn.*, President of the *Columbia Jersey Cattle Company*.

EDITOR JERSEY BULLETIN:

Enclosed find report of test of Landseer's Fancy (2876). As will be seen, she made 936 lbs. 14 $\frac{3}{4}$ oz. from the 26th day of January, 1885, to the eve of January 25, 1886, inclusive.

She lost time from May 30, 1885, to July 4, 1885, being out to calve, but was not dry at any time. We thought that in making a yearly test we should not count butter made within twenty-five days of calving, so all the milk and butter after May 30 till July 4 was thrown out. She calved June 29—bull, Landseer's Pogis—having been served by Pogis Chief (3998) September 22, 1884. So she was four months and four days in calf when the test began, and she carried this calf about five months. She was bred to Toltec (6831) September 29, 1885, stood first service, and now carries the calf, making nine months she carried the calves. This test was made to show her capacity as a butter and brood cow, and was started without reference to time of calving. I have had many inquiries as to her feeding and treatment. A great many think that there must be some unusual treatment to produce such results. It is much more simple than they suppose. I regret that no accurate account of her feed was kept during the year, and that I can only give general treatment. There have been several serious mistakes made during the year, and if she had not been a cow of great recuperative power would have broken down. The record shows that our most successful treatment was when she was under good, high feed, but not the highest. I am satisfied that there is more in constant care and watchfulness than in forcing, and the feed should be for butter only. . . .

This cow has been under good treatment for several years, but at the very start was the richest cow I ever saw. She was started on January 26, 1885, on feed of four quarts corn-hearts and two quarts bran, over cut hay, dampened, twice daily; sometimes she had five or six quarts of corn-hearts, but usually four quarts. She ran out with the herd then all the time. No material change was made in her treatment until about the 15th of May; we began to cut down her feed, sometimes increasing and then cutting down, being governed by the condition of the cow. This increasing and cutting down may be seen in the variation of the yield about that time. On the 30th we had about taken all the feed from her, and found that ordinary pasture was not good enough for her. Just here we were very much puzzled to know how to treat her. She was bound to have food and plenty of it, as she was still milking; so I determined to take the risk of milk-fever, . . . and think that more of them are killed from scientific exhaustion than any other cause. I know that a cow should not be fat, but contend that they should be strong and on rising ground when they calve.

We took her out of the meadow about two or three days before calving and put her on bran mashes and hay, and she calved in beautiful fix. The record immediately after calving proves we made no mistake in this treatment. We gradually increased the feed until it reached four quarts corn-hearts, four quarts oats, two quarts wheat bran at a feed, twice daily, over cut hay at the beginning, but the hay was soon dropped, which was a mistake. She ran out all the time with the herd until cold weather; sometimes the pastures were good, but for a long time they were destroyed by drought.

About the 20th or 21st of September she was, by our manager's mistake, fed double her usual ration—he feeding instead of the herdsman—so she got about a bushel of grain in one day; this threw her off for several days. . . . She came around quickly, and early in October we ordered an official test for her granddaughter, Maquilla (24043), intending to test Landseer's Fancy at the same time, if she was all right. On the 24th of October, when the committee came, they found her out of fix and the test was not begun. We started Maquilla, but abandoned it because of her condition. This was partly due to the long high feeding—expecting the committee some time before they came (as this was not the first application for a test, it was inconvenient for the tester to come when first applied for)—but the immediate cause was acorns which the cows got in the pasture. The record at this point ran as low as 1 lb. 12 oz., from the milk of October 24. I then had her put on light

feed composed of one sack green wheat, some turnips, two quarts corn-hearts, two of oats, two of wheat-bran, with hay at will : took her up, kept her in large box-stall, had her well groomed and exercised morning and night. She gradually improved in health, and on January 1 was in excellent health, so that three days before that she had one gallon corn-hearts, two quarts bran at a feed twice daily, and consumed it quite greedily.

On January 1, 1886, I saw her milked morning and evening, and placed it each time under lock and private seal in the test-room, a cemented stone room built for testing purposes, which is inaccessible except through the door, which I sealed. It remained under this seal until I broke it and had it churned. She gave this day 12 lbs. 6 oz. milk, which churned 3 lbs. 1 oz. of butter; it was first well worked and weighed, then salted 1 oz. to pound, then reworked and weighed when ready for market. I need not add that this was nearly all cream.

I invited a number of my friends, among them Major Brown, Mr. Shirley and Mr. Malone, to see one day of her milk put under seal and churned. It was inconvenient for them to come, so on the 13th of January I applied for an official test, and Major Alvord—being absent, received my telegram on the 18th—replied by letter and subsequently by telegram on the 21st, stating that he would send tester next week, if still wanted. I had then applied to the President of the Tennessee Breeders, who appointed Mr. Hord, the secretary of this association and editor of the *Spirit of the Farm*. He associated with him Mr. J. M. Mayes, President of the Columbia Banking Company, and R. M. McKay, Vice-President of the Second National Bank of this place. Their report has been published and speaks for itself. She gave this day, January 23, 1886, 9 lbs. $4\frac{1}{2}$ oz. of milk, 2 lbs. $10\frac{3}{4}$ oz. of butter : it was salted 1 oz. to the pound, ready for market as usual. It was weighed both on balance and spring scales, the weights agreeing. Her year was out January 25, and the test was not continued any longer.

She was a little off when the committee tested her, but is now all right every way. She was tested by the A. J. C. C. in 1883, four months after calving, and in seven days from 123 lbs. 10 oz. milk made 21 lbs. 15 oz. butter. (It will be noticed that about the same time from calving she made about the same amount of butter in this test.) For the clerk of the Circuit Court, in 1883, she made 2 lbs. 15 oz. butter from 16 lbs. 10 oz. milk. In 1884, for Mr. S. N. Warren—who, I learned, doubted her extreme richness, and was invited to test her, to his satisfaction, and who reported the test at

the time to the *Country Gentleman*—she made in one day, two months before calving, from 16 lbs. 3 oz. of milk 2 lbs. 11½ oz. butter. In 1886, tested by the Tennessee Breeders' Association, 9 lbs. 4½ oz. milk made 2 lbs. 10¾ oz. butter. Better than all, we have the cow, a living witness of her own richness and ability. She is as great a brood cow as a butter cow. Landseer's Fancy, best week, 29 lbs. ½ oz.; her daughter, Rosy Dream, 19 lbs. 1 oz.; her daughter, Toltec's Fancy, 17 lbs. 6 oz.; combined for cow and two daughters, 65 lbs. 7½ oz. She is also the dam of Proxy's Fancy, at the rate of 14 lbs., and of Maquita (7589), 3 lbs. 13 oz. butter in two days from 40 lbs. milk—no preparation for test and just off of cars, having been sent to us to breed. Maquita is dam of Maquilla (24043), test 20 lbs. 1 oz. Her sire's dam, Dazzle (379), is dam of Duke F. (6134); he sired Jersey Queen of Barnet, 851 lbs. in a year, also Snowdrop F. W., 168 lbs. milk made 14 lbs. 8 oz. butter in seven days. . . . Fannie Landseer, by the same sire, Landseer (331), recently tested, one day, 12 lbs. 2 oz. milk, 2 lbs. butter. . . . Gold Prince, son of Landseer, is sire of three and grandsire of several over 14 lbs., but they were stricken from the Herd Register in the Violet case, and have dropped out of notice; prominent among them Pride of Eastwood, 20 lbs. 14 oz. . . .

Some breeders term Landseer's Fancy an inbred cow; I do not, but line-bred, with an out-cross culminating in the tested cow. Her dam is the result of breeding half-brother and sister together, but this is probably not too close if there is an immediate out-cross. I am informed that her near relatives, Young Fancy (97), Fancy, 2d (95), and Fancy (9), were all great cows, but they lived before the day of tests, so we must look to their descendants. . . . I have my own views as to which line is most prominent, but may be mistaken, and leave the public to judge for itself. It may be, and probably is, a combination of several strong lines. I believe in bringing together the blood of all the best families. It is well, too, to note that the following are bred on this formula, viz.: First the union of relatives not closer than half-sister and half-brother, and then an immediate out-cross:

TEST FOR A YEAR.

	lbs.	oz.
Landseer's Fancy.....	936	14¾
Mary Anne of St. Lambert.....	867	0

TEST FOR A WEEK.

	LBS.	OZ.
Princess, 2d.....	46	12 $\frac{1}{2}$
Mary Anne of St. Lambert.....	36	12 $\frac{1}{4}$
Oxford Kate.....	39	12
Ethleel, 2d.....	30	15
Ida of St. Lambert.....	30	21 $\frac{1}{2}$
Landseer's Fancy.....	29	0 $\frac{1}{2}$
Mermaid of St. Lambert.....	25	13 $\frac{1}{2}$

There are many others. The above are sufficient to call attention to the point, and others may pursue the inquiry.

STATEMENT OF MILK AND BUTTER YIELD OF LANDSEER'S FANCY
BY PERIODS.

			BUTTER. LBS. OZ.
From January 26, 1885, to March 26, 1885 inclusive.....			180 14
“ March 27, 1885, to May 10, 1885, inclusive.....			118 11
“ May 11, 1885, to May 30, 1885.....			28 5
Amount before dropping calf.....			327 14
	MILK. LBS. OZ.		
From July 4, 1885, to July 15, 1885, inclusive.....			36 3
“ “ 16 to 22, inclusive.....	152 8	29	0 $\frac{1}{2}$
“ “ 23 to 29, “.....	159 7	25	13
“ “ 30 to August 5, inclusive.....	159 11 $\frac{1}{2}$	24	15
“ August 6 to 12, inclusive.....	152 13	23	15 $\frac{1}{2}$
“ “ 13 to 19, “.....	147 0	21	11 $\frac{1}{2}$
“ “ 20 to 26, “.....	135 12	21	8 $\frac{1}{2}$
“ “ 27 to September 2.....	129 0	22	4
“ September 3 to 9.....	129 11	22	12
“ “ 10 to 16.....	130 5	22	6 $\frac{1}{2}$
“ “ 17 to 23.....	122 1	21	10
“ “ 24 to 30.....	112 4	21	13
“ October 1 to 7.....	112 5	23	10 $\frac{1}{2}$
“ “ 8 to 14.....	116 6	24	6
“ “ 15 to 21.....	129 6	23	8
“ “ 22 to 27.....	79 2	13	11
“ “ 28 to November 6.....	142 0	28	11
“ November 7 to 13.....	105 7	20	8
“ “ 14 to 20.....	102 12	20	12
“ “ 21 to 27.....	117 0	21	2
“ “ 28 to December 4.....	95 9	20	1
“ December 5 to 18.....	147 11	27	12
“ “ 19 to 31.....	163 15	31	8
“ January 1, 1886, to January 7.....	85 14	16	4
“ “ 8 to 14.....	82 7	18	3
“ “ 15 to 25.....	114 11 $\frac{1}{2}$	24	15 $\frac{3}{4}$
Amount from January 26, 1885, to January 25, 1886....		936	14 $\frac{3}{4}$

And carried calf, Landseer's Pogis, till June 29, 1885, dropping him alive. Was bred again September 29, 1885, and carried the calf to end of test. She lost during the year from May 30, 1885, to July 4, 1885, being out to calve.

ANOTHER 900-LB. COW.

A Year's Record of Massena, No. 25732, A. J. C. C.

By P. P. PADDOCK (*her owner*).

MALONE, FRANKLIN COUNTY, N. Y., March 19, 1886.

Maj. HENRY E. ALVORD :

Dear Sir : In compliance with your request I give you a statement of the doings of the Jersey cow Massena (25732). Massena dropped a calf March 14, 1884. In the first month after calving she gave 975 lbs. of milk ; in the second month she gave 1,020 lbs. ; and in the third month 1,100 lbs., making in all for the three months 3,095 lbs. She was then tested for butter, and made 20 lbs. 7 oz. of butter in seven consecutive days from 210 $\frac{3}{4}$ lbs. of milk. In her fourth month she gave 920 lbs. of milk ; fifth month, 800 lbs. ; and sixth month, 740 lbs., making in all for the second three months 2,460 lbs. She was then tested again for butter, and made in seven consecutive days 16 lbs. 1 oz. from 167 lbs of milk. In the seventh month she gave 719 lbs. of milk ; eighth month, 690 lbs. : ninth month, 631 lbs., making 2,040 lbs. for the third three months. At the end of the ninth month she was again tested seven days for butter, and she made 14 lbs. 2 oz. from 140 lbs. of milk. As her feed was uniform, as near as possible, through this whole time, I deem it fair to rate her butter according to the average of these tests. This would credit her with 740 lbs. of butter for the nine months. After this Massena was carefully tested for butter until she dropped her calf, and the record is as follows :

	MILK.		BUTTER.	
Tenth month, 31 days.....	526	lbs. 2 oz.	59	lbs. 11 oz.
Eleventh month, 31 days.....	477	" 0 "	53	" 2 "
Twelfth month, 28 days.....	391	" 12 "	39	" 5 "
Thirteenth month, 11 days.....	104	" 12 "	10	" 1 "
Thirteenth month, 4 days (milk not used)				
Above estimated for 9 months....	7,600	" 0 "	740	" 0 "
Total for 1 year and 11 days.....	9,099	" 10 "	902	" 3 "

On the 30th day of March, 1885 (one year and fifteen days from the birth of her last calf), Massena gave me a smart, healthy, vigorous heifer calf. It will be seen that Massena's greatest achievements were performed in the last three months, and particularly in the last month and last half of the month, when she made 1 lb. of butter per day seven days before calving. Massena was fed in summer, besides good, fair pasture, 12 lbs. of grain food per day. From last of August until she was stabled for winter she had in addition green clover twice each day. In winter she had bright, early-cut hay, cut and softened with hot water, and grain mixed with it, about 15 lbs. per day. The grain ration was materially increased before she calved. Part of the time she had good corn-stalks in lieu of the hay, treated in same way. She also had potatoes once a day. In colder weather the water she drank was warmed a trifle. Massena consumed in the year 5,250 lbs. of ground feed. This was corn-meal, barley-meal, ground oats, wheat-middlings, and wheat-bran; also about 1,800 lbs. of hay and thirty bushels of potatoes. A liberal valuation for food consumed, including pasturing, would be here \$92.42; her produce was 902 lbs. of butter, at 30 cents—\$270.60; leaving a net profit of \$178.18.

It will be remembered that Massena's test of 20 lbs. 7 oz. was made in June, three months after calving. This was made from 210 $\frac{3}{4}$ lbs. of milk. In May, four weeks before this test was made, she gave 268 lbs. of milk in a week. This should have made over 25 lbs. of butter. Massena is a low, broad, capacious cow, with great power for storing feed. She has never weighed less than 850 lbs., nor over 900, since I have owned her. She is a great worker, and always seems to be hungry. I have often seen her at work alone in the pasture where all of the rest of the cows were standing or lying in the shade.

The weight of every milking for the year is on record, and also the results of every churning used as a part of the test. The butter was all salted 1 oz. to the pound, thoroughly worked and made ready for market, before being weighed for the record.

Massena (25732) was bred in St. Lawrence County, N. Y., near her present home, and was dropped in March, 1876. She is broken in color. Her dam was bred by Alvin Adams, of Massachusetts, and out of imported parents. Her sire was Kago (1353), owned by the Messrs. Rutherford, of St. Lawrence County, and both his grand-sires and grandams were imported; one of the former was Sam Weller (271).

ANNUAL MILK-YIELD OF JERSEY COWS IN THE PROSPECT HILL HERD.

PROPERTY OF MESSRS. MILLER & SIBLEY, FRANKLIN, PA.

Reported by E. H. SIBLEY, Manager.

NAME OF COW.	H. R. NO.	MILK-YIELD. LBS.	TIME.	NOTES.
Cill of Glen Rouge....	13818	7,008	12 mos.	After first calf. Ordinary feed.
Goldstraw, 3d.....	14724	7,036	8½ mos.	In calf half the time. Ordinary feed.
Nerissa of Nyack.....	9692	7,136	10 mos.	In calf seven months. Ordinary feed.
Golden Zoe.....	3975	7,227	11 mos.	In calf seven months. Ordinary feed.
Silver Straw.....	14723	7,461	11 mos.	In calf eight months. Ordinary feed.
Mary of Pleasant View	13448	7,655	10 mos.	In calf seven months. Ordinary feed.
Butterfly.....	18197	7,806	11 mos.	In calf ten months. Ordinary feed.
Duchess of Darlington	13830	7,936	12 mos.	In calf ten months. Ordinary feed.
Queensborough.....	24345	8,622	11 mos.	In calf eight months. Ordinary feed.
Fawn of St. Lambert..	27942	10,101	12 mos.	After first calf, and ending before three years.
La Petite Mère, 2d....	12810	10,329	12 mos.	In calf seven months. On ordinary feed.
Matilda, 4th.....	12816	16,153	12 mos.	See special notes.
Ida of St. Lambert....	24990	1,888	1 mo.	67 lbs. each, two consecutive days, 455½ lbs in 7 days

SPECIAL NOTES.—Fawn of St. Lambert (above) had extra feed for the last four months of her year. For Ida of St. L. the average grain ration was about thirty pounds, while she was averaging 60 lbs. milk a day. La Petite Mère, 2d, during the five months ending March 31, 1886, gave 7,551 lbs. of milk—an average of 23 qts. of milk a day for five months; for this period the grain ration averaged twenty-two pounds. Matilda, 4th, had liberal though not excessive feeding during her year's work—an average of twenty-five pounds of grain; her average product for the whole year was 20 qts. per day. During this time the cow was tested for butter from one to seven days in every month and continuously for the last four months; the lowest possible estimate for her year's butter-yield, based upon the actual records made, is 927 lbs. 8½ oz.

The twelve cows of which there is a year's record above averaged 8,700 lbs., or 4,030 qts., of milk each, and eleven months as their milking period.

THE EARLY HISTORY AND DEVELOPMENT OF
JERSEY CATTLE.

By HON. EDWARD BURNETT,

Proprietor of Deerfoot Farm, Southborough, Mass., and President Bay State Agricultural Society.

From many interesting talks on the subject with the older farmers on the Island of Jersey I think I am safe in saying that the foundation of this breed of cattle was a cross on the large red Normandy cow with the small black Brittany many centuries ago. On Jersey it is quite evident that the Brittany predominated at first, and on Guernsey the reverse, as the Guernsey cow of to-day has the color, size, and many characteristics of the famous red and white Normandy cow. Owing to the difficulty of approach to these rock-bound islands this original cross has been kept more or less intact, and time, coupled with good judgment, has formed a distinct breed of cattle noted for the quality and quantity of their butter.

Many of the following facts on the development of this breed of cattle I have obtained from Thornton's valuable introduction to the first volume of the English Herd Book.

The first authentic notice of these cattle as a distinct breed is furnished in an act passed by the States of Jersey in 1789 to prevent the fraudulent importations of cows, heifers, calves, and bulls from France. Then we find Thomas Quayle's account of the "Agriculture of the Islands on the Coast of France," where he resided for five months in the year 1812. A portion of this report is as follows :

"The treasure highest in a Jerseyman's estimation is his cow. She seems to be a constant object of his thoughts and attention, and that attention she certainly deserves." Of color, he says : "It is commonly red or red and white, occasionally what is called cream-colored or that color mixed with white. Sometimes they are black or black and white ; some, like the Northwest Highlanders, are black, with a dingy brown-red ridge on the back, and about the nostrils of the same color." He also says : "The extraordinary animals give as much as 24 quarts of milk in the twenty-four hours, and from April to August instances are named of 14 lbs. of butter made in the week. In summer nine quarts of milk make a pound of butter, and in winter seven quarts produce that quantity."

Mr. George Garrard, about the beginning of the present century, writes under the patronage of the English Board of Agriculture that "the cattle from the Channel Islands are healthy and subject to no

particular disease, and in England they bear the strongest winters out of doors ; yet from custom they are always housed on the Islands and fed upon straw. They are easily fattened at any age ; for this purpose parsnips are generally cultivated, though with time they may equally improve on turnips, potatoes, or any of the methods usually practised, as they are not very dainty."

Mr. W. Plees, for many years a resident on the Islands, writes in 1817 of their being called erroneously the Alderney. "The cows," he says, "are of that breed known in England by the name of Alderney cows ; the far greater number, however, if not all, are now sent from Jersey. It is, however, probable that the first cows imported into England from these Islands were sent from Alderney, and that the name has been continued to prevent any supposed diminution in their value."

Another Englishman, in a short article about Jersey written in 1826, remarks : "The cows are so generally sought after and held in such high estimation that they require but little to be said in their praise. By a singular misnomer they are almost universally described in England as Alderney cows. The breed on both Islands is similar."

Before I leave this question, so often disputed by men not familiar with the breed and the geography of these Islands, I will quote from Colonel C. P. Le Cornu's prize essay delivered before the Royal Agricultural Society in 1859 : "The fact of cattle of this type being brought over to England first from Alderney was the cause through which that small and thinly-populated island got its name attached to the produce of Jersey and Guernsey. A military station has long existed in Alderney (the English government spent £3,000,000 there on fortifications, it being supposed to be the natural key to the protection of all the islands), and it is possible men returning from service there may have been the means of spreading at home the reputation of the Channel Island breed for peculiarly rich milk and butter. Be that as it may, the practice of the Messrs. Fowler, of England, in advertising their numerous sales as being of Alderney cattle, popularized the use of the name and has helped to keep it in existence."

From all authentic sources we learn that the improvement of this breed, like that of all others, was brought about by a few of the best farmers, who had the judgment and foresight to breed from bulls out of superior cows. During the first part of this century little progress seems to have been made, although in 1826 another and more stringent act was passed by the States to prevent the importation of cattle from France.

It was not until 1833, when undoubtedly urged by the success

achieved in England by the wonderful development of the Short-horn and other breeds of thoroughbred cattle, as shown by the great cattle-shows held in various parts of the country, that a few gentlemen and farmers formed the Royal Agricultural and Horticultural Society of Jersey. The original Mr. Fowler, father of the present English dealers, and Colonel Le Conteur were the most prominent promoters; and to Colonel Le Conteur, for many years the secretary of this Society, all Jersey breeders of to-day owe a debt of deep gratitude. The first resolution carried was "that encouragement of agricultural and horticultural improvements and the improving the breed of cattle would conduce to the general welfare of the Island." In January, 1834, the Society drew up their first scale of points, with the help of the best breeders and dealers. Two of the best cows on the Island were selected as models; one was allowed to be perfect in her forequarters and barrel, and the other in her hind-quarters. Twenty-five points was the requisite for bulls, and 27 for the cows and heifers.

The first show was held in March of that year, and £24 was distributed in prizes.

In 1835 the show presented not only a larger number of competitors, but the animals were much finer specimens and in better condition. The same results were obtained in 1836, and a suggestion was thrown out that a superior bull be kept in each of the twelve parishes by the Society for the use of farmers. In 1837 two shows were held, a custom continued up to the present day—one for bulls in March, and the other for females in May. £55 were distributed in prizes at these shows.

The system of giving points for pedigree (which on the Island meant offspring of prize-winners) began in 1838. Two other most important regulations were also enacted—one to the effect that any person withholding the service of a prize bull from the public shall forfeit the premium, and the other that all heifers having been awarded prizes shall be kept on the Island until they shall have dropped their first calf. If previously sold for exportation they shall forfeit the premium. This year three more points were added to the scale, one for growth and two for general appearance—making a total of 28 for bulls, 30 for cows, and 28 for heifers. In five years the value of superior cattle doubled.

In 1839 the report of the secretary pointed out that "the attention of the Board of Management is closely directed to the improvement of the herd of Island cattle," and it also adds that "the cows indigenous to our soil had long been celebrated for the purity

and richness of their milk, but they had been exported from the Island in such poor and wretched condition that they were bought by the English from their cheapness and utility as regarded the dairy only. Until recent years, so little was the breed of this Island distinguished that the cows imported into England were sold as the product of Alderney, although that little speck in the Channel could not have furnished one-hundredth part of the exportation from the Channel islands."

The exhibit of this year also showed a marked improvement.

In 1840, 19 bulls were decorated and 12 cows and 26 heifers received premiums. The judges report on this occasion that several animals were rejected, which in former years would have received prizes. They also add that seven years' attention to breeding by the prominent farmers had done much to eradicate that ancient defective characteristic of the Jersey cow—the drooping hindquarter. This was ascribed to better feeding, and the more careful selection of the bulls. At the annual dinner of the Society this year Colonel Le Conteur made the following speech: "I would tell those that are lukewarm to this Society to look back ten years—the land foul with weeds, crops inferior, liquid manure wasted, and the market ill-supplied. What had been effected? In cattle beauty of form and flesh had been added to milking and creaming qualities. More cattle had been decorated this year than on any previous occasion, and the breed had been so greatly improved that many of the cattle rejected for having less than nineteen points would have been prize cattle when the Society was formed, so well were their merits now understood."

I have quoted more at length and given more space to this period of the history of the Jersey, as it seems to have been that in which the most rapid improvement was made, and Col. Le Conteur's work is clearly and distinctly seen all through it.

After 1840 the march of improvement was slower, and the next important advance was the offering of liberal prizes by the Royal Agricultural Society of England at Southampton in 1844 for "Channel Island or Crumpled-horned Cattle." At this show, the report adds, "it was observable that a marked difference existed between the Guernsey and Jersey breeds, the latter being altogether of more delicate and slight form. Mr. Bates, the famous Short-horn breeder, was much pleased by the handling of some of these cattle, and advised careful crossing to better develop this point, as it gives a tendency to fattening and milking qualities."

The Island Society report for this year adds: "It seems pretty well established throughout most dairy farms in England that one Jersey cow to two or three of another breed greatly tends to improve the color and richness of the butter. Hence it behooves the Jersey farmers to be watchful in preserving the coloring and rich properties of their breed."

The influence of the Southampton Show evidently led the Royal Agricultural Society of England to pay more attention to this breed, for the next year, 1845, Col. Le Conteur was invited to read his excellent paper "On the Jersey, misnamed the Alderney Cow."

The colonel's report to the Island Society in 1846 reviews the situation most carefully. "Perhaps," he says, "it can be safely asserted that previous to 1833 no one had thought of improving the breed of cattle by any system or fixed rule. The Jersey cow was excellent, as she has ever been, which has been attributed to the circumstances of a few farmers having constantly attended to raising stock from cows of the best milking qualities; which attention, prosecuted for a long number of years in a small country like ours where such superior qualities would be soon known, led to the excellence of the milking and butter-yielding properties in the race at large. This never could have been attained so generally in any extended country." This point is, in my humble opinion, most well taken, and one that I have often quoted of late years.

The potato rot and the agricultural depression more or less affected the welfare of the Jersey Royal Society for the next few years.

In 1852 the first Parish Shows were held on the Island, St. Peter's taking the lead. At first it was thought to be detrimental to the old parent society, but it proved to be just the opposite, and in five years the competition from each of the twelve parishes at the Royal was so keen that the show was much larger than any previous one.

At the beginning of the present half-century our own country made its first importations of any note, and to Messrs. Motley, Taintor, Norton, and Buck belongs the credit of many of our famous strains of blood. At this period of our agricultural history, great interest had been developed in beef cattle, and Americans were attending Short-horn sales in England and paying prices heretofore unheard of. This evidently awakened the interest in other breeds of cattle, and as dairy animals the Jerseys (or as Col. Le Conteur says, the misnamed Alderneys) attracted much attention, especially in the New England and Middle States. The Island report of 1853, 1854, and 1855 speaks of American buyers, and also warns the breeders of the injury they are doing to themselves and to their neighbors in selling off their

prize animals. The Island report of 1858 was retrospective : “ Thirty years ago the cattle were ill-fed, ill-shaped beasts that knew not the taste of mangolds, carrots, or swedes, scarcely that of hay ; whose stabling was wretched, and whose winter food consisted mostly of straw, and a few watery turnips. Now they are well fed, improved in quality and symmetry, and well housed. New buildings dotted the Island, and general prosperity dawned on the farmer.”

During this period, in America, the Jerseys were attracting attention and a number of small importations were made. In the Massachusetts Agricultural reports from 1853 to 1859 I find frequent mention made of them, and always in their favor as dairy cows, the wonderful richness of their milk and superb quality of their butter being noticed. Mr. Thomas Motley’s selections for the “ Massachusetts Society for Promoting Agriculture ” reflect great credit on his judgment, and his tests in 1853 and 1854 of Flora, 511 lbs. 2 oz. in fifty weeks, were quoted by all the agricultural papers throughout the country as being very remarkable. Fed as the cow was, her record to-day deserves a place perhaps second to none. Her daughter, at the exhibition of the United States Agricultural Society in Boston, took the first prize, and from this family Jersey Belle of Scituate was descended.

The Jersey slowly but surely gained ground, and from these early importations the cattle spread and increased, although not without much opposition on the part of the Short-horn, Devon, and Ayrshire breeders. Fearing, Morris, Wellington, Maitland, and others continued to import, and the advance of this breed into public favor as butter cows never seems to have been checked, although at times the improvement of the cattle themselves developed more slowly.

On the Island prices gradually advanced as the demand for export increased. In 1866 the Island Herd Book was started, and in 1867 many new members were added, owing to the great demand for cattle in England and America. Waring, Dinsmore, Hoe, Sharpless (C. L.), and many others made valuable importations about this time, and many croakers predicted that the prices then paid were absurd and would never be reached again. Several animals were bought for America from the celebrated Dauncey herd in England, which were sold at remarkable prices in October, 1867. A short description of the foundation of this famous herd certainly deserves mention in the history of the Jersey, as both Eurotas and Mary Anne of St. Lambert contain Dauncey blood.

Mr. Philip Dauncey is justly called the father of Jersey breeders in England. He is described as a keen sportsman and loving a good

horse. In 1821 he lived at Swanbourne and kept a Suffolk cow which gave 21 quarts of milk. While riding about this part of the country he one day saw a small lemon-fawn cow with a white muzzle which greatly attracted his fancy. This cow—a Jersey, as she proved to be—he afterwards bought of Mr. Fowler and called “Pug.” She gave only 11 qts. of milk, yet made $10\frac{1}{2}$ lbs. of butter a week, against $10\frac{1}{2}$ lbs. from his Suffolk cow, both of them having calved in August. His choice of a dairy cow was at once made, and a few years later, moving to Horwood, he laid the foundation of his herd, which, owing to poor health, was sold in 1867. This sale attracted noblemen and gentlemen from all parts of the country, and the prices paid proved this herd to be one of the greatest achievements of a breeder’s skill ever known in England. He bred for butter and kept about fifty cows, which yielded in butter alone a net profit of over \$100 per cow. Careful tests often showed 14 lbs. of butter a week from one cow, and in one instance 16 lbs. His best average yield was in June, 1867, when the entire herd of fifty cows gave an average of over $10\frac{1}{2}$ lbs. He was an enthusiastic breeder and parted with few animals, although often tempted by high prices. Several animals went to Germany, one bull to Tasmania, and nine heifers and a bull to Australia, from which importations the foundation of a famous herd was laid in Melbourne. The breeding and the care which the Dauncey herd received evidently did much to increase their size and render them coarser than the Island type of the Jersey, yet their splendid constitutions and large frames attracted the attention of all breeders, and the potency of this blood has been very marked wherever it has been introduced. Mr. Dauncey had a great fancy for self-colored or solid-colored animals, and the wonderful result of his sale, I think, had much to do with the demand which sprang up in England and America about this time for solid colors, and which for several years sadly demoralized many of the Island breeders, as they sacrificed everything to color. Colonel Waring, in his letter of 1872, to the Jersey Royal Society, advocating the reopening of the Herd Book for Foundation Stock, advised that attention should be paid to dairy qualities rather than to color, and deprecated the practice of killing broken-colored bulls from good dairy cows, and saving self-colored ones from dams that were inferior milkers.

The most important move in this country, owing to the rapid increase not only in numbers, but in the value of the Jersey cow, was the establishment of our Herd Register in 1869. Col. Waring at this time did much to bring about the present condition of the Jersey, and to him belongs much credit for the results obtained. As the

first secretary of the Club, though he was ably assisted by Messrs. Hand, S. J. Sharpless, Beach and several others, he met with many difficulties, and had a great many tangled skeins in the shape of pedigrees to unravel. To show that the Club was well conceived and successfully launched I will only refer to the twenty volumes of the Herd Register now published (containing 15,000 entries of bulls and 35,000 entries of females) and to the last report of the treasurer.

Going back to the Island, we find that the next ten years have improved the form and shape of the cattle and developed a strong taste for self-colored animals, at a sacrifice, in many instances, of their dairy qualities. The Jersey Royal Society has called the attention of farmers to this point in several of their reports. A redeeming feature, however, during this period is the fact that the custom of driving cows to prize bulls became almost universal, and a marked improvement in the shape of the udder was made.

About this time Dr. Hubbell, one of the oldest Jersey breeders in America, after much thought and deliberation, selected for a butter bull St. Helier (45). His great success, although extending back comparatively few years, is now fully established by the prices paid by intelligent breeders for this strain of blood. He has justly been called the Dauncey of America, and it is a great pity that, having been discouraged by the judging of cattle at our Exposition in 1876 at Philadelphia, strictly on the scale of points adopted by our Club, he retired from active work and scattered his herd, really before it was fully developed in the qualities which he aimed at producing. Here at home the growth of the Jersey in public favor has been slow but sure, and during the years 1879 and 1880 it took a most decided start and brought many new and active breeders into the field. This interest was awakened somewhat by the return of business prosperity, and also, I think, by the tests of Eurotas and Jersey Belle of Scituate, and the publishing of their wonderful records for a year.

We have made during the past few years a great stride in bringing the Jersey into favor, and extravagant prices have been paid for single animals, in some instances perhaps foolishly; but the distribution of the Jersey into almost every State in the Union has given us a broad foundation, which must eventually prove to be a solid one; for, owing to the easy acclimatization of this wonderful little Channel Island cow, she is making her butter records in the East, West, North and South. Nearly all breeders have begun to realize the importance of the old adage that "like begets like or the likeness of some ancestor," and the demand for butter bulls is growing every day. The wonderful development of the trotting horse in America should,

perhaps, teach us a lesson, which is that the most successful breeders have been those who have not tied themselves up to any one family, such as the Messenger, Mambrino, Abdallah, and other well-known strains of blood, but have sought a combination of these famous families to obtain the phenomenal trotters.

As a nation we have the reputation of being in a great hurry to obtain wealth and position, but let us remember, as breeders of cattle, that time, patience and unremitting attention are the most essential points to obtain success; and history proves this, not only by the success of the Dauncey herd, but by that also of all the prominent English breeders of other stock, the two Collings, Bakewell, Bates and many others.

We have produced, by feeding and carefully training the animals to digest and assimilate their food, many wonderful authentic records which are of great value, but it behooves the majority of breeders to improve *the average yield of their entire herd* rather than to seek to produce one phenomenal cow.

The future of the Jersey in this country is certainly most promising, although there is at present, and always will be, I trust, a slow sale for inferior animals. On the Island the encouragement which all breeders have had in disposing of good dairy animals at remunerative prices to American buyers has greatly increased their efforts and clearly pointed out the fact that to hold their market they must breed to butter bulls. They are also paying much attention to testing cows, and the new Farmers' Society, established two years ago, will, if it carries out its ideas, accomplish much, and in a few years greatly improve the butter quality of the Island stock. Many American breeders do not realize how much more rapidly the results of breeding are shown on the Island than here at home. The causes are most apparent, for on less than 40,000 acres are 10,000 thoroughbreds, and a remarkable butter record is known within 48 hours from one end to the other of this wonderfully fertile Island, twelve miles long and seven miles wide. This naturally stimulates all thinking farmers to better work.

We have done and are doing much to improve the breed, but there is a great field, and in the race some will be successful and others not. Our climate and generous feeding have changed many of the characteristics of the Island cattle, and have a great tendency to make more bone and coarsen the animal. These results are natural and something over which no breeder has control, and in the near future I predict that our pure-breds will increase from 25 to 50 per cent. in

weight. This is perhaps desirable, as our market is rapidly extending into the West, where the general argument against the Jersey cow is her small size.

To all Jersey breeders it must be most gratifying to follow up the reports of all our great fall cattle-shows and see that the entries for Jerseys are generally two to one of every other breed.

In my own immediate neighborhood I have, although still a young man, seen a great change take place among the farmers. Thirty years ago my father first introduced Jerseys, and all the old farmers laughed at him and ridiculed his herd. To-day a grade Jersey is generally considered the best cow and most persistent milker in the farmer's herd, and at public auction will bring from \$5 to \$10 more than any other cow.

In conclusion, let me add that it behooves us to remember that actions speak louder than words, authentic butter records than talk, and that we must not claim for our breed too much. All pure-blooded cattle have a place to fill, and the Jersey has proved that hers is at the churn.

